

KABUPATEN

# Tapanuli Tengah

DALAM ANGKA

*Tapanuli Tengah Regency in Figures*

2022



**BADAN PUSAT STATISTIK  
KABUPATEN TAPANULI TENGAH**  
*Statistics of Tapanuli Tengah Regency*

KABUPATEN

# Tapanuli Tengah

DALAM ANGKA

*Tapanuli Tengah Regency in Figures*

2022



**dRSni RnVg nRi RgnebnVgYRa UReRf RgYdR**  
**jw w j- w h- - y U -**  
**B9BB**

S'XC899A3::A

X-4[ oyxn°v[ fföyprff-“ Xffz or.C786: 648867

Un@y-t 5Mhffiy-t C768667486:

bx .n“ K x 5L--x'vrC7: Apz 87 pz

T z ynu Rnyz n“ 5Xffz or...s[ ntr° Gy 1 :; 8 uny5 ntr°

Xn°xnu5Wn“ ffp.v.fc

K[ ' UJ Kb[ J aNK aJ [ J XbVsaNXPJ R

L[ ' 4 fffp°-san° n“ ffyar“ tnu\_rtr“ p

[ r“ “ @t 50qvf.C

K[ ' UJ Kb[ J aNK aJ [ J XbVsaNXPJ R

L[ ' 4 fffp°-san° n“ ffyar“ tnu\_rtr“ p

M°nV U- r.5M- r.Nr°t“C

K[ ' UJ Kb[ J aNK aJ [ J XbVsaNXPJ R

L[ ' 4 fffp°-san° n“ ffyar“ tnu\_rtr“ p

Sy °@n°vU- r.5M- r.Syfffnff-“C

Jembatan Hamzah Al-Fansuri, Air Terjun Mursala/Hamzah Al-Fansuri Bridge and Mursala Waterfall

' z or.Sy °@n°vP .n° uvp° o C

s.r.r° v4-z

M@.av@n“ -y u5[ fföyurqo C

K[ ' UJ Kb[ J aNK aJ [ J XbVsaNXPJ R5L[ ' 4 fffp°-san° n“ ffyar“ tnu\_rtr“ p

Mpr@x -y u5[ .v. ffqo C

Lc4\_vy P.nsxm

Myn.n“t z r“t z z xn“ 2z r“ qv°@v° °xn“ 2z r“t-z “xn°xn“ 2qn“ 5n@ z r“ ttn“ qnxn“  
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qn.vKnqn“ [ °n@ @@@4  
[ .-uvovff q ff n“ “-ffl pr 3qvffvovfff 3p-z z ffl vprff 3n“ q6-.p- . n.ff-.ny-sfvüv o--x s-...  
p-z z r.pany. ffi:-°r vü-ffff. r.z. v°v-“ s.-z L[ ' 4 fffp°S' q-“ r°vn5

**ntf i Vgsnl ngg TPc c Tc QThi**

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M.°4J "tt vn@a y °' vont n.n"t

**i                    c           8f-           R w -**  
Mrq f °z n" @' n.nt u2' 'a

**i                    8fz**  
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**i                    U           i           g           8w wf y-           w z P**  
Mrq f °z n" @' n.nt u2' 'a [ °. ∞J "tt .n∞ vUnon" 2' 4.4.©©

**i                    e           8bw           S-           -**  
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<https://tapanulitengahiro.bps.go.id>



**dh g nkl n nh k URnR85 Pj P Re dj hXkj e h**

- 74 M' n° U-z " x n° v q n" S' s-.z. n° x n Uno • n° " an• n" yar" t nu
- 84 Knq n" [r" t r y-y n n" Ur n" t n" 2[r" q n• n° n" 2q n" J° r° M n r .n u Uno • n° " an• n" yar" t nu
- 94 M' n° Ur° r u n° n" Uno • n° " an• n" yar" t nu
- : 4 M' n° [r.° n" v n" Uno • n° " an• n" yar" t nu
- ; 4 M' n° [r. u o " t n" Uno • n° " an• n" yar" t nu
- <4 M' n° [r" n" n z n" W-q n y q n" [r y n n" n" [r. v. v° n" ar. .n q ' n° [V° © Uno • n° " an• n" yar" t nu
- =4 M' n° W' t x " t n" R v q • Uno • n° " an• n" yar" t nu
- A4 M' n° [n. v. v° n° n" Uno • n° " an• n" yar" t nu
- B4 M' n° U r y n ° n" q n" [r. x n" n" Uno • n° " an• n" yar" t nu
- 764 M' n° [r z o r. q n n n" [r. r z • n" q n" [r. y' q " t n" J° n x Uno • n° " an• n" yar" t nu
- 774 M' n° [r x r. w n" b z z q n" [r" n° n" \_ n" t Uno • n° " an• n" yar" t nu
- 784 M' n° Ur• r" q q x n" q n" [r" p n° n" ' v y Uno • n° " an• n" yar" t nu
- 794 M' n° [r. v. q ° © n" q n" [r. q n t n" t n" Uno • n° " an• n" yar" t nu
- 7: 4 M' n° ' -° v n y Uno • n° " an• n" yar" t nu
- 7; 4 M' n° [r" t r" q n y n" [r" q q x q n" U r y n. t. n K r. r.° p n" n Uno • n° " an• n" yar" t nu
- 7<4 M' n° U-• r. n° v b° n u n U r p y q n" W r" r t n u Uno • n° " an• n" yar" t nu
- 7=4 Knq n" Ur• r t n n v n" q n" [r" t r z o n" t n" ' z o r. M n n W n" ° v n Uno • n° " an• n" yar" t nu
- 7A4 b[ a M\_ z n u ' n x v b z z M n r. n u [n" q n" Uno • n° " an• n" yar" t nu
- 7B4 ' r x. r. ° n. v. M r n" [r... n x y n" \_ n x n° M n r. n u Uno • n° " an• n" yar" t nu
- 864 Ur• -y° v n" \_ r° -. . an• n" yar" t nu
- 874 [r" t n q y n" X r t r. v. v o -y t n U r y n° S
- 884 V r z o n t n [r z n° n. n x n° n" U r y n° S J ' v o -y t n
- 894 [r" t n q y n" J t n z n [n" q n"
- 8: 4 U-z v° v [r z y u n" b z z M n r. n u an• n" yar" t nu
- 8; 4 b[ [ M K n q n" [r" t r y-y n [n w a x q n" \_ r° v o ° v M n r. n u [ . . . v° v' z n° . n b° n. n [n" q n"

8<4 Un" @.r.@" nun" Uno • n@" an" ywar" t nu

8=4 Un" @.Ur z r" @.n" J t nz n Uno • n@" an" ywar" t nu

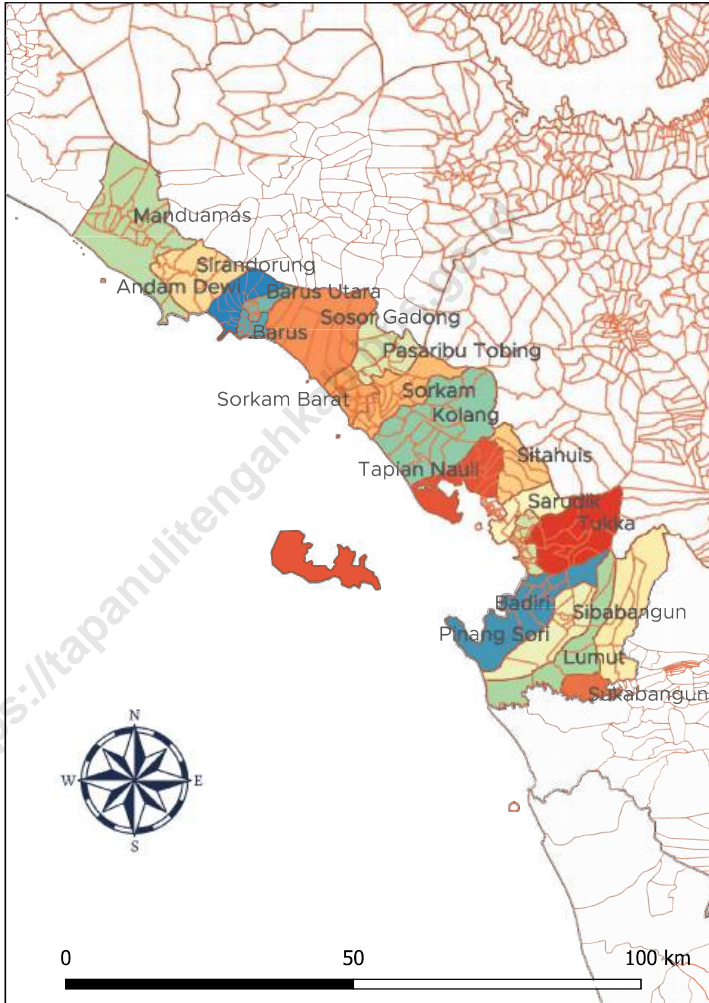
8A4 [ MJ W av.@" nqvL non" t an" n" ywar" t nu

8B4 [ MJ W W nyXn yw

964 [ a4[-° S' q-" r°vn. • r.:r.:/L non" t ' w-yt n

<https://tapanulitengahkab.bps.go.id>

**i VnR p kRsRa dRSni RmVg nRi RgnebmVg YRa  
c Pf e UjPfPdkbXj TdVPWhTVTdRo**







**dVi ReR Si l dRSni RmVg nRi RgnebnVg YRa  
RWWTUi jPj Xj RXPd eUjPfPdkbXj TdVPWhTVTdRo**



**U 7RgYYlRmmenl lSRYRklRgY**





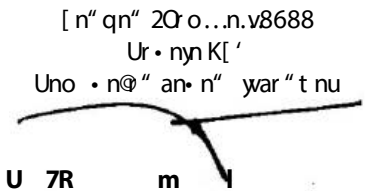
## dRnR i Vg YRg nRk

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 Uno · n@" an· n" yar"tnu @ynu qn· n@z r" ry°n°xn" · r" ° "n" o x  
 [ oyxn°vUno · n@" an· n" yar"tnu Mhynz J"txn 86884K x v°vz r...· nxn"  
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 ar"tnu Mhynz J"txn 86872 or.v°vq n@n qn" v°s-z.n°v n"t or...z or..qn.v.  
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 KbWX5KbWm2qn" ° n°@qv yn nu Uno · n@" an· n" yar"tnu4

' rpn.n t n.v. or°n.2· oyxn°v n"t qv°n°xn" qnyz or"°x @oryqn" t.nsvx  
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 · r" q q x qn" xr@" nt n°r.wm" D°-°vny qn" xr°r mu@.n" .rx n@°r. @" v" 2  
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 qvUno · n@" an· n" yar"tnu 2onx v°@n"°v· rz r.v. @u2KbWX5KbWm2z n· "  
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 an· n" yar"tnu Mhynz J"txn 8688 v°vqn· n°qv@.avxn" 4

Jxuv.. n2°rz -t n· oyxn°v°vqn· n°z rz on"° @°x rz r" vvxro @un"  
 qn@n°@@@x n"t °n"t n°r"°@t ont v°@n"°v· rz r.v. @u °r ont nv onun"  
 · r.r." pn" nn" qn" r ny n°v un°y· rz on"t "n" °rx@.nyqn" y°@n° °rx@.nyqv  
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 ynv" n4





**f h T U P R T**

aun"x° ff fūr t.npr -s Q-q Kyz vt uff 3°- funff fūr L[ ' 4 fhffōffp° -s an.n" ffy ar"t nu\_rtr"p un° orr" noyr ff p-z .yff fūr .r. n.nffv- " -s fūr o--x [ ffōy pnfv- " -san.n" ffivar"t nu\_rtr"p v Pxt ffr.° 97995auv o--x v n" n" ffny. ffōy pnfv- " n" q v n p- " ff' ffnfv- " -s fūr an.n" ffivar"t nu\_rtr"p v Pxt ffr.° 97983 uupu p- " fhv° qnfh n" q v s-.z. nffv- " °-ffiprq s.-z .:ffff' r npfv vfr °3°ffi.r °3n" q pr" °ffir° p- " qffpff q o fūr L[ ' 4 fhffōffp° n° fūr .v n... qnfh3 uyr °rp- " qn... qnfh n.r. p-yr pff q s.-z t- r. :z r" ffv° fffffv- " °3' fhff 4Y " r q O' ff .:..v.r° 6\_rtv- " nyY " r q O' ff .:..v.r° 3n" q .v.nff v n.r.n -san.n" ffivar"t nu\_rtr"p 5

L.v.sy 3fvv° . ffōy pnfv- " -s uupu v .r.° r" ff q v fūr s-.z. -s ffōy° n" q t.n. u° 3 p- " fhv° v t fūr °ffhōffpny qnfh -" D:r-t.n. u n" q pyz nff Et- r. :z r" fE. -° ffynfv- " n" q rz .y- z r" fE° -pny n" q r ysn.rEnt.vpffvffir 3s-.r.° ff. 3yr° ff-px 3n" q sv ur.. E z v v t n" q r" r.t. Eff-ffivz Effn"° .- .fhfv- " n" q p-z z fff vnfv- " Ep--° r.nffv r n" q on" xv t E-° ffynfv- " r .r" qvffirEn" q Q. :° \_rtv- " nyN-z r° ffp [ .:qffpfb

Y" fv v -ppn° v- " r -ffj yxr ff fūr n" x s-.nyy. n.fv° v an.n" ffivar"t nu\_rtr"p 3 rfvv... \_rtv- " nyQ- r. :z r" ffv° fffffv- " °3' fhff 4Y " r q O' ff .:..v.r° 6\_rtv- " nyY " r q O' ff .:..v.r° .:..v.nff 3s-.nyfvv° ffr .- .fn" qn° vfh" pr unqt v r" °- funff [ ffōy pnfv- " ° -san.n" ffivar"t nu\_rtr"p v Pxt ffr.° 9799 pn" or . ffōy v urq 5

Pv ny 3 r u- r fv v° . ffōy pnfv- " vvor ury sfyff- z r rffvūr " r r q° -s °ffhōffpny qnfh uupu v r... v .- .ff' ffs-.t- r. :z r" ffv° fffffv- " n° n- r. sfy v t.r qv " ff s-... .yn" v t n" q r nyffnfv- " -s fūr .r.° ffjv° -s° r pff .ny n" q p. :° 4r pff .nyqr ry- z r" ffv° an.n" ffivar"t nu\_rtr"p 3n° r y n° s-. fūr -fūr . qnfh ffr .:.

[ n" qn" 3Pro.fhn... 9799  
Mvrs' fhffōffpn" -s  
an.n" ffivar"t nu\_rtr"p



S 6P w j i x w w w



## URWRk b b8Re dj Tdji

Rnyz n"  
[ ntr

Un@ [ r" t n" @.5[ .r snpr	v
Mns@. S 5M- " ff" ff	wv
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Mns@. .P nz on.5Wff-sPt ffr. °	y w
Mns@. .! v t xn@ 5Wff-sKoo.r. vffr- " °	y
' @@ @x U " p5Ur ' fffr ffp °	yw
74 Pr-t.nsvqn" Skyz 5Qr-t.n. u n" q Myz nff	7
84 [ rz r. v. @un" 5Q- r. " z r" ff	7=
94 [ r" q q xqn" Ur@ " nt nxr. vnn" 5[ --> ffynffr- " n" q Qz . y- z r" ff	<B
: 4 ' -° vnyqn" Ur° r wu@ .nn" _nx n@ -pnyyn" q d r ysn.r.	769
; 4 [ r. @ " vn" 2Ur u @ " n" 2[ r@ . ".n xn" 2qn" [ r. vxn" n" 5Kt . pff yfffr 3P- .r. ° ff. 3	
Vv r° ff px3n" q P v ur...	8 ;
<4 N' r. t. vqn" v q ° v50' r. t. n" q v qfffr.	8BB
=4 [ n. v. v n@ 5a- ffr v z	997
A4 a. n" ° . - . @ vqn" U- z " vxn° 5a. n" ° . - . fffr- " n" q M- z z ffr p nffr- "	9 ;
B4 U- r. r. n° vqn" [ r. an" xn" 5M- r. nff r n" q Ln" xv t	9=9
764 [ r" try n. n" [ r" q q x5[ --> ffynffr- " O . r" q vffir.	9B7
774 ' v @ z Xr. n p n _ r t v- " ny5' ° ffz -s_r t v- " nyKpp- ffr ff	: 6;
784 [ r. an" q v t n" n" @. Uno . n@ " 5U- @ 5[ .: . v pr M- z . n. v. - "	: 9=



URWRk nRSVe&X j e Uj PQBTi

Rnyz n"  
[ ntr

**A7 YVh YkRWbURg l&elf &/Te VhPf Wb PdS RbX Pj T**

**A7A dVRRURg YVh YkRWb**

**VTe VhPf Wb Re dS X J e d**

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an° n° yar° t nu28687  
a-ffhYK.rn° q Xffz or...s S°yn° q° o ' ffoqv°ffv°ffv° an° n° ffyar° t nu  
\_rtr° p 39798 77

7478 Ur° ttn° d yn nu qn° Tn.rx xr S x-° Uno • n° Wr° ...©  
Ur pnz n° qvUno • n° an° n° yar° t nu28687  
Kyffffr n° q N°ffh° pr ff-Mh° vffh°-s\_rtr° p o ' ffoqv°ffv°ffv° an° n° ffy  
ar° t nu\_rtr° p 39798 79

**A7B dVRRURg l&elf**

**RbX Pj T Re dS X J e d**

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Ury° SSOV4a-ov° t an° n° yar° t nu28687  
Yo°r..nff° -s Myz nff Qrz r° ff o W-° ff° nff PV°-ov° t Mn° S  
Wrff°-..y-t ' fffh° -s an° n° ffyar° t nu\_rtr° p 39798 7:

**B7 i Vf Vklg nRa Rg &/e l Thdc Tdj**

**B7A p l&RsRa RUF lg b nkRntW**

**PS c Xj hPj X T PhTP**

8474 T z ynu Mr° n°5Ury .nun° Wr° ...© Ur pnz n° qv Uno • n°  
an° n° y2867= 8687  
Xffz or...s cwnt r°°b .an° M-z z fff vff o ' ffoqv°ffv°ffv° an° n° ffy  
ar° t nu\_rtr° p 3978A 9798 8=

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Xffz or...s Vn° q Y "r.°uv° Mr .ffv°nff S°ffr q o ' ffoqv°ffv°ffn° q a • r  
-s Vn° q\_°t uff v° an° n° ffyar° t nu\_rtr° p 39798 8A



**B7B UVp Rg i Vkp RdŁeRg kRdsRmURVkrA**

**hTVXē dPbWe ki Te UhTf hTi Tdj Pj X Ti**

8484 Mns@. [rz wun ar@. [rz wun" bz z Wr" ...Tr" v Urynz v qn"  
Urpnz n@ qvUno • n@ an" yar" tnu2867B  
Xffz or...s [r.z.n"r"ffc-ff.:v fur Qr"r.nyQr pffr- o 'r n"q  
'ffoqvffpffv an" n"ffyar" tnu\_rtr"p 3978C4 8B

8484 [r.:y un" ' n.n ' nu [n.@v [-y@x Rn°y [rz wun" bz z qv  
Uno • n@ an" yar" tnu Wr" ...@ [n.@v [-y@x qn" Urpnz n@  
qvUno • n@ an" yar" tnu2867B  
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[rz wun" qn" [n.@v [-y@x qvUno • n@ an" yar" tnu2867B  
Xffz or...s cnyq c-ff° n"q \_rtv- nyR-ffr -s\_r. :.r" fffvr° ' rnf  
Ln°rq -" Qr"r.nyQr pffr- \_r°ffffo c-ff' t K.rn n"q [-yffpny [n.ff v  
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8484 T z ynu J "tt-@ Mr n" [r...nxyn" \_nx n@Mhr.nu .M[\_M Rn°y  
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Uno • n@ an" yar" tnu2867B  
Xffz or...s \_rtv- nyR-ffr -s\_r. :.r" fffvr°° Wrz or.:Ln°rq -"  
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Qr"r.nyQr pffr- \_r°ffffo [-yffpny [n.ff n"q 'r v an" n"ffyar" tnu  
\_rtr"p 3978C4 9A

8484 T z ynu J "tt-@ Mr n" [r...nxyn" \_nx n@Mhr.nu .M[\_M Rn°y  
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Tr" v Urynz v qvUno • n@ an" yar" tnu2867B  
Xffz or...s \_rtv- nyR-ffr -s\_r. :.r" fffvr°° Wrz or.:Ln°rq -"  
Qr"r.nyQr pffr- \_r°ffffo c-ff' t K.rn3 [-yffpny [n.ff3 n"q 'r v  
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84 4 \_r ny°n°v [ r" r .v nn" Kr nKnyx Xnz nUr" qn.nn" Kr.z.-©.28687

Kpffny\_r r" ffr -s W-ff...crupyr ° a.n"°sr..an v an• n" ffyar" t nu  
\_rtr" p 39798 4

<=

**C7 i VgUnUnd URg dVmVgRYR dVkcRRg8  
f e f k bPj X e d PdS Tc f b e o c Tdj**

**CA i VgUnUnd  
f e f k bPj X e d**

947 [ r" q q x2 Vnw [ r.©z o un" [ r" q q x2 M°©w °v [ r.:r" @°r  
[ r" q q x2 Ur• nqn@° [ r" q q x2 qn" \_n°v Tr" v Urynz v  
[ r" q q x Wr" ...©Urpnz n@° qv Uno • n@° an• n" yar" t nu2  
8686 qn" 8687

[ -• ffynff- " 3 [ -• ffynff- " Q.: ffu \_nff3 [ r.pr" ffitr Nvffvoffff- " -s  
[ -• ffynff- " 3 [ -• ffynff- " Nr" °vf3 n" q ' r \_nff- o ' ffoqvffvpff v  
an• n" ffyar" t nu \_rtr" p 39797 n" q 9798 4

A:

947 T z ynu [ r" q q x Wr" ...©Ury-z • -x bz ..qn" Tr" v Urynz v qv  
Uno • n@° an• n" yar" t nu28687

[ -• ffynff- " o Ktr Q.:ffi n" q ' r v an• n" ffyar" t nu39798 4

A=

947 T z ynu [ r" q q x Kr.qn°n.xn" Ur• rz vxn" Un.© an" qn [ r" q q x  
Wr" ...©Urpnz n@° qvUno • n@° an• n" yar" t nu28687

Xffz or.:s [ -• ffynff- " Ln°rq- " Pnz w Mh.qY " r.:uv o ' ffoqvffvpff  
v an• n" ffyar" t nu \_rtr" p 39798 4

AA

9474 T z ynu Ury n.t.nKr.qn°n.xn" Ur.rz vxn" Un.© Ury n.t.nWr" ...©  
Urpnz n@n" qvUno .n@" an.n" yar" t nu28687  
Xffz or...sPnz wy Ln°r q- Pnz wy M.ffspnff Y "r.:uv o 'ffoqv'ffvpff  
v' an.n" ffjvar" t nu\_rtr" p 39798 ~~4~~ AB

9474 T z ynu Jx@n Vnuv... n"t M@.av@n" Wr" ...©Tr" v Urynz v' qn"  
Urpnz n@n" qvUno .n@" an.n" yar" t nu28687  
Xffz or...sLvffu M.ffspnff S°ffrq o 'r n"q' ffoqv'ffvpffv' an.n" ffjv  
ar" t nu\_rtr" p 39798 ~~4~~ B6

9474 T z ynu Jx@n Vnuv... n"t M@.av@n" Wr" ...© Urpnz n@n" qv  
Uno .n@" an.n" yar" t nu2867<38687  
Xffz or...sLvffu M.ffspnff S°ffrq o 'ffoqv'ffvpffv' an.n" ffjvar" t nu  
\_rtr" p 39798=49798 ~~4~~ B7

9474 T z ynu Jx@n Urz n@n" n"t M@.av@n" Wr" ...©Tr" v Urynz v'  
qn" Urpnz n@n" qvUno .n@" an.n" yar" t nu28687  
Xffz or...sNrnffu M.ffspnff S°ffrq o 'r n"q' ffoqv'ffvpffv' an.n" ffjv  
ar" t nu\_rtr" p 39798 ~~4~~ B9

**C7B dVnVgRYRdVkcRRg**  
**Tc f be oc Tdj**

9484 T z ynu[r" q q xKr...z .Z; anu " Ur n@n" Wr" ...©Tr" v Urt vn@n"  
'rynz n' rz v'tt n"t Vny qn" Tr" v Urynz v' qv Uno .n@n"  
an.n" yar" t nu28687  
[-> ffjnf- " 8<frn.:~sKtr n"q Y r..o a.r -sKpffv vff Nffiv.t fur  
[.r. v-fff drrxn"q'r v' an.n" ffjvar" t nu\_rtr" p 39798 ~~4~~ B:

9484 [r" q q xKr...z .Z; anu " xr J@n" Wr" ...©[r" qvxn" ar.@'ttv  
n"t M@z n@n" qn" Tr" v Urt vn@n" 'rynz n' rz v'tt n"t Vny  
qvUno .n@n" an.n" yar" t nu28687  
[-> ffjnf- " 8<frn.:~sKtr n"q Y r..o Cqffpnff- "nyKfffv'z r"ffn"q  
a.r -sKpffv vff Nffiv.t fur [r. v-fff drrx v' an.n" ffjvar" t nu\_rtr" p 3  
9798 ~~4~~ B;

9484 [r" q q x Kr...z ...7; anu " Ur J@n" n"t Krxr.van 'rynz n  
' rz v'tt n"t Vny Wr" ...©' @n° [rxr.van" b@nz n qn" Tr" v  
Urynz v' qvUno .n@n" an.n" yar" t nu28687  
[-> ffjnf- " 8<frn.:~sKtr n"q Y r... u-d -.xrq Nffiv.t aur [r. v-fff  
drrx o WnV' Oz .y- z r'ff' ffffff n"q 'r v' an.n" ffjv ar" t nu  
\_rtr" p 39798 ~~4~~ B=

- 984 [r"q q x Kr...z ...7; anu " Ur J@° n"t Krxr.wm 'ryzn n  
'rz v'tt n"t Vny Wr" ..©Ury-z -x bz ..qn" Tr"v Uryzn v'  
qvUno • n@" an• n" ywar"t nu28687  
[-• ffynffr-" 8<frn.º.-sKtr n"q Y r..d u-d -.xrq Nffiv.t fur [.r. v-fff  
drrxo Ktr Q.:-ffr n"q'r v' an• n" ffivar"t nu\_rtr"p 397984 766 BA
- 984 [r"q q x Kr...z ...7; anu " Ur J@° n"t Krxr.wm 'ryzn n  
'rz v'tt n"t Vny Wr" ...©Vn• n"tn" [rxr.wm" b@z n qn"  
Tr"v Uryzn v' qvUno • n@" an• n" ywar"t nu28687  
[-• ffynffr-" 8<frn.º.-sKtr n"q Y r... u-d -.xrq Nffiv.t aur [.r. v-fff  
drrxo Wnv' S'qffff..n"q'r v' an• n" ffivar"t nu\_rtr"p 397984 766 BB
- 984 [r"q q x Kr...z ..7; anu " Ur J@° Vny Wr" ...©Urtvn@" b@z n  
'ryzn n'rz v'tt n"t Vny qvUno • n@" an• n" ywar"t nu2867<3  
8687  
[-• ffynffr-" 8<frn.º.-s Ktr n"q Y r..o Wnv' Kpffv'ff Nffiv.t fur  
[.r. v-fff drrxv' an• n" ffivar"t nu\_rtr"p 3978=49798 766
- 984 a'v'txn© [r"tn"tt .n" ar.a xn .a[a/ qn" a'v'txn© [n.@v n°v  
J"t xn@ Ur.wm .a[J U/ Uno • n@" an• n" ywar"t nu qn" [.. v°v  
' z n@.n.b@.n2867; 8687  
b"rz • y- z r"ff\_nff /b\_0n"q Vno-.P-.pr [n.ffp,n nffr-"\_nff NP[\_0-s  
an• n" ffivar"t nu\_rtr"p n"q'ffz nff.n.bff.n.[.. v'pr 3978<49798 768

**D7 I hl lRe URg dVI VcRa mVkRRg kRdsRnñ e RXPbPdS mTbUPhT**  
**D7A i VgUWUldRg**  
**TSkRPj Xed**

- : 474 T z ynu 'rx-y nu2 P ..2 qn" W .xq anz n" Un" nx3Un" nx .aU/ qv  
Kn nu Urz r" @.n" [r" qvqwn" 2Ur o qn nn" 2\_vr @qn" arx"-y-t v  
Wr" ...©Urpnz n@" qv Uno • n@" an• n" ywar"t nu2 868658687  
qn" 868758688  
Xffz or...s' pu--y3ar npur.º:3n" q [ffr v' v' Uv' qr.t.n.ff" b"qr..aur  
Wv' v'ff..-s Qqffpnffr-" 3Mffiffir3\_r°rn.pu3n" q ar pu"-y-t o' ffvq v'ff pff  
v' an• n" ffivar"t nu\_rtr"p 3979769798 n" q 979869799 78B



: 47B T z ynu ' rx-y nu2P ..2qn" W .sq \_n qn© yJ @usny. \_J / qvKn nu  
 Urz r" @.n" J t nz n Wr" ..©Ur pnz n©n" qvUno • n©" an• n" y  
 ar" t nu2868658687 qn" 868758688  
 Xffz or...s' pu--y3ar npur.:3n" q [ ffi w' v' \_nffqnfyyKfusny/\_KOb" qr...  
 aur Wv' vff...-s\_ryt v-fff Kssnv.:o ' ffoqv'ffvpffv' an• n" ffjv ar" t nu  
 \_rtr" p 3979769798 n" q 979869799 ~~4~~ 798

: 47D T z ynu ' rx-y nu2P ..2qn" W .sq ' rx-y nu Mn°n...' M qvKn nu  
 Urz r" @.n" [ r" qvqxn" 2 Uro qn nn" 2 \_vr © qn" arx"-y-t v  
 Wr" ..©Ur pnz n©n" qvUno • n©" an• n" y ar" t nu2868658687  
 qn" 868758688  
 Xffz or...s' pu--y3ar npur.:3n" q [ ffi w' v' [.w n... ' pu--y' b" qr .aur  
 Wv' vff...-sQqffpnff- 3Mffjffir3\_r°rn.pu3n" q arpu"-y-t o ' ffoqv'ffvpff  
 v' an• n" ffjvar" t nu\_rtr" p 3979769798 n" q 979869799 ~~4~~ 799

: 47A T z ynu ' rx-y nu2P ..2qn" W .sq Wnq.n°nu S©qnv nu .WS qv  
 Kn nu Urz r" @.n" J t nz n Wr" ..©Ur pnz n©n" qvUno • n©"  
 an• n" yar" t nu2868658687 n" q 868758688  
 Xffz or...s' pu--y3ar npur.:3n" q [ ffi w' v' Wnq.n°nu Sffqnv nu  
 /WSb" qr .aur Wv' vff...-s\_ryt v-fff Kssnv.:o ' ffoqv'ffvpffv' an• n" ffjv  
 ar" t nu\_rtr" p 3979769798 n" q 979869799 ~~4~~ 79<

: 47C T z ynu ' rx-y nu2P ..2qn" W .sq ' rx-y nu Wr" r" t nu [ r.©z n  
 .' W[ /qvKn nu Urz r" @.n" [ r" qvqxn" 2Uro qn nn" 2\_vr ©qn"  
 arx"-y-t v Wr" ..©Ur pnz n©n" qvUno • n©" an• n" y ar" t nu2  
 868658687 qn" 868758688  
 Xffz or...s' pu--y3ar npur.:3n" q [ ffi w' v' V- r.:.rp-" qn... ' pu--y'  
 b" qr .aur Wv' vff...-sQqffpnff- 3Mffjffir3\_r°rn.pu3n" q arpu"-y-t o  
 ' ffoqv'ffvpffv' an• n" ffjvar" t nu\_rtr" p 3979769798 n" q 979869799 ~~4~~ 79B

: 47K T z ynu ' rx-y nu2P ..2qn" W .sq Wnq.n°nu a°n" n v nu .Wa° /qv  
 Kn nu Urz r" @.n" J t nz n Wr" ..©Ur pnz n©n" qvUno • n©"  
 an• n" yar" t nu2868658687 n" q 868758688  
 Xffz or...s' pu--y3ar npur.:3n" q [ ffi w' v' Wnq.n°nu a°n" n v nu  
 /Wa°Ob" qr .aur Wv' vff...-s\_ryt v-fff Kssnv.:o ' ffoqv'ffvpffv' an• n" ffjv  
 ar" t nu\_rtr" p 3979769798 n" q 979869799 ~~4~~ 7: 8

: 474 T z ynu ' rx-ynu2P ..2qn" W .xq ' rx-ynu Wr" r" t nu J @° . ' WJ / qv Kn nu Urz r" @ .n" [ r" qvqxn" 2Uro qn nn" 2\_vr @qn" arx" -y-t v Wr" ..©Ur pnz n@n" qv Uno • n@" an• n" yar" t nu2 868658687 qn" 868758688

Xffz or...s' pu--y3ar npur.:3n" q [ ffi w' v' b••r...:rp-" qn... ' pu--y' b" qr..aur Wv' vff...-s Qqffpnffr-" 3Mffjfffr.3\_r°rn.pu3n" q arpu" -y-t o ' ffoqv' ffpffv' an• n" ffjvar" t nu\_rtr" p 3979769798 n" q 9798697994

7: ;

: 474A T z ynu ' rx-ynu2P ..2qn" W .xq ' rx-ynu Wr" r" t nu Urw...n" . ' WU/ qvKn nu Urz r" @ .n" [ r" qvqxn" 2Uro qn nn" 2\_vr @qn" arx" -y-t v Wr" ..©Ur pnz n@n" qv Uno • n@" an• n" yar" t nu2 868658687 qn" 868758688

Xffz or...s' pu--y3ar npur.:3n" q [ ffi w' v' c-pnffr-" nyRvt u ' pu--y' b" qr..aur Wv' vff...-s Qqffpnffr-" 3Mffjfffr.3\_r°rn.pu3n" q arpu" -y-t o ' ffoqv' ffpffv' an• n" ffjvar" t nu\_rtr" p 3979769798 n" q 9798697994

7: A

: 474B T z ynu ' rx-ynu2P ..2qn" W .xq Wnq.n°nu J y nu .WJ / qvKn nu Urz r" @ .n" J t nz n Wr" ..©Ur pnz n@n" qv Uno • n@" an• n" yar" t nu2868658687 n" q 868758688

Xffz or...s' pu--y3ar npur.:3n" q [ ffi w' v' Wnq.n°nu Ky nu /WK0 b" qr..aur Wv' vff...-s\_ryt v-ff Kssnv.: o ' ffoqv' ffpffv' an• n" ffjvar" t nu\_rtr" p 3979769798 n" q 9798697994

7: 7

: 4746 T z ynu Mr°n7Ury .nun" n" t Wrz vvxvCh°v@° ' rx-ynu Wr" ..©Ur pnz n@n" qn" av' t xn@ [ r" qvqxn" qv Uno • n@" an• n" yar" t nu2 867B38687

Xffz or...s' cvynt r°8 Uryffinun" Rn v' t Qqffpnffr-" ny Pnpjyffr° o ' ffoqv' ffpffv' q Qqffpnffr-" ny Vr ryv' an• n" ffjvar" t nu\_rtr" p 3978C 4 97984

7: ;

: 4747 [ r.:r" @r [ r" q q x Kr...°v76 anu " Ur J @° Wr" ...© [ n. @v n°v ' rx-ynu qn" Tr" v Ur yz v' qv Uno • n@" an• n" yar" t nu28686 qn" 8687

[ r.pr" ffitr -s [- ffjnffr-" 87 frn.: -s Ktr n" q Y r..o ' pu--y' t [ n.ffpv' nffr-" n" q' r -san• n" ffjvar" t nu\_rtr" p 39797 n" q 97984

7: B

: 4748 [ r.:r" @r [ r" q q x n" t Wn°w ' rx-ynu Wr" ..©Ur y-z • -x bz ..qn" Tr" v Ur yz v' qv Uno • n@" an• n" yar" t nu28686 qn" 8687

[ r.pr" ffitr -s [- ffjnffr-" Kfff" qv' t ' pu--yo Ktr Q.-ff n" q' r v' an• n" ffjvar" t nu\_rtr" p 39797 n" q 97984

7<6



: 479 [r.:r" @°r [r" q q x Kr...°vn 76 anu " Ur J@° Wr" ...©' @n°  
[r" qvqxn" qvUno • n@" an• n" yvar" t nu28686 qn" 8687  
[r.pr" ffitr -s [-• ffynffr- 87 frn.: -s Ktr n" q Y r..o Qqffpnffr-  
' ffffff v' an• n" ffivar" t nu\_rtr" p 39797 n" q 9798 ~~.....~~ 7<7

: 47: [r.:r" @°r [r" q q x Kr...°vn 76 anu " xr J@° Wr" ...©Sm nu5  
' aaK ar. @ttv n" t Mz yxv qn" Tr" v Urynz v' qv Uno • n@"  
an• n" yvar" t nu28686 qn" 8687  
[r.pr" ffitr -s [-• ffynffr- 87 rn.: -s Ktr n" q Y r..o M ffffspnff -s  
Kfffv z r" ffn" q' r v' an• n" ffivar" t nu\_rtr" p 39797 n" q 9798 ~~.....~~ 7<8

: 47; [r.:r" @°r [r" q q x Kr...°vn 76 anu " Ur J@° Wr" ...©  
Urz nz • n" Wrz onpnqn" Wr" y' qvUno • n@" an• n" yvar" t nu2  
8686 qn" 8687  
[r.pr" ffitr -s [-• ffynffr- 87 frn.: -s Ktr n" q Y r..o Wff.np an• n" ffiv  
ar" t nu\_rtr" p 39797 n" q 9798 ~~.....~~ 7<9

: 47< av' t xn° Wryx R ...s Wr" ...© Ury-z • -x bz ...qv Uno • n@"  
an• n" yvar" t nu28686 qn" 8687  
Wff.np \_nff -s [-• ffynffr- o Ktr Q.-ffv v' an• n" ffivar" t nu\_rtr" p 3  
9797 n" q 9798 ~~.....~~ 7<:

: 47= J" t xn [n. @v n°v W ..v.J [ W/ qn" J" t xn [n. @v n°v Un° n...J [ U/  
Wr" ...© Tr" w" t [r" qvqxn" qn" Tr" v Urynz v' qv Uno • n@"  
an• n" yvar" t nu28686 qn" 8687 ~~.....~~  
**d - T - - hw - w z V T - - hw - x Tz yw**  
**b- - jw w j- w h- - y 4A8A8 w z A8A9**

**D7B dVI Va RnRg**  
**WTPbj W**

: 47 T z ynu Mr°n7Ury .nun" fn" t Wrz yxv' n.n" n Ur°r un@n" Wr" ...©  
Urpnz n@n" qvUno • n@" an• n" yvar" t nu2867B 38687  
Xffz or...s cynt r° @Uryffinun" Rn v' t Rrnyfu Pnpvffr° o ' ffoqv' ff.pff  
v' an• n" ffivar" t nu\_rtr" p 3978C 49798 ~~.....~~ 7<<

: 47 T z ynu ar" nt n Ur°r un@n" Wr" ...© Urpnz n@n" qv Uno • n@"  
an• n" yvar" t nu28687  
Xffz or...s Rrnyfu d -xr..o ' ffoqv' ff.pffv' an• n" ffivar" t nu\_rtr" p 3  
9798 ~~.....~~ 7=8

- : 44 T z ynu \_ z nu ' nxv©bz z 2\_ z nu ' nxv©Uu ° °2 [ °xr°z n°2  
Uy' x [ .n@z n2qn" [-° n" q Wr" ...©Ur pnz n@n" qvUno • n@"  
an• n" yar" t nu28686 qn" 8687  
Xffz or...s Qr" r.ny R-°• vfiyß '• rpnryrq R-°• vfiyß [ ffoyp Rrnyfu  
M" ff.3[ .x n... My' vß3n" q S' fft.nffq Rrnyfu [-°ffo ' ffoqv'ffv'v'  
an• n" ffivar" t nu\_rtr" p 39797 n" q 9798 7=
- : 44 Vn• -.n" U-° qvV[n°v" \_n n©Tny" qn" \_n n©S' n• qv\_ z nu' nxv©  
bz z Mnr.nu [n" qn" 28687  
\_r• -.ff-s Y ffff nffr" ffn" q S'• nffr" ffM-° qvfr-° v' [n" qn" \_rtv-° ny  
[ ffoyp R-°• vfiyß9798 7=
- : 44 Vn• -.n" U-° qvV[n°v" Wr" ...©[r" tt " nn" Un.© Kr..on©qv  
\_ z nu' nxv©bz z Mnr.nu [n" qn" 28687  
\_r• -.ff-s Y ffff nffr" ffn" q S'• nffr" ffM-° qvfr-° o a • r -sS'° ffin" pr v'  
[n" qn" \_rtv-° ny[ ffoyp R-°• vfiyß9798 7=A
- : 44 Vn• -.n" [r" nxv©ar.an" nxqv\_ z nu' nxv©bz z Mnr.nu [n" qn" 2  
8687  
\_r• -.ff-sW-° ffp.r" ffr" ffY ffff nffr" ffn" q S'• nffr" ffnVrn°r° v' [n" qn"  
\_rtv-° ny[ ffoyp R-°• vfiyß9798 7A6
- : 44 Th.v't n" [ °xr°z n° qvUno • n@" an• n" yar" t nu28687  
Xrff -.x.-s[ ffoyp Rrnyfu M" ff.v' ar" t nu an• n" ffyv\_rtr" p 39798 7A7
- : 44 T z ynu U "w"t n" [n°v" Ur [ °xr°z n° Wr" ...©[ °xrz n° qv  
Uno • n@" an• n" yar" t nu28687  
d x- f x y W-w R- - l x f x y W-w R- - X  
j- w j w w h- - y 4A8A9
- : 44 T z ynu U "w"t n" [n°v" xr [ °xr°z n° Wr" ...©Tr" v' [r" nxv©  
ar.an" nxqvUno • n@" an• n" yar" t nu28687  
Xffz or...s [ ffoyp Rrnyfu M" ff..c v'ffo a • r -sNvRrn°r° v' an• n" ffyv  
ar" t nu\_rtr" p 39798 7A9
- : 446 T z ynu Kny©P v vK ...xWr" ...©[ °xr°z n° qvUno • n@" an• n" y  
ar" t nu28686 qn" 8687  
Xffz or...s Wny' ffff vfr-° S' sn" ffv' an• n" ffivar" t nu\_rtr" p 39797 n" q  
9798 7A:



: 477 [r.:r" @r [r" q q x n"t Wrz wvxvTnz v"n" Ur°r un@n" Wr" ...©  
Tr" v Tnz v"n" Ur°run@n" n"t Mz wvxv qn" Tr" v Urynz v qv  
Uno • n@" an" n" yar" t nu28687  
[r.pr" ffitr -s [- ffynff- d u- Rn r Rrnyfu S'°ffin" pr o a • r -s  
Rrnyfu S'°ffin" pr n" q' r v an• n" ffjvar" t nu\_rtr" p 39798 7A;

: 478 [r.:r" @r d n" v@n Kr..z ..7; 3 B anu " n"t Kr.:@° [r.:.nu  
Un v Wr" ...© On° w@° arz • n© Wrynuvxn" J" nx Vnuv..Rvq •  
ar.nxuv.qvUno • n@" an" n" yar" t nu28686 qn" 8687  
[r.pr" ffitr -s Or..Wn..v.q d -z r" Ktrq 8<4 Cfrn.:°o [ynpr -s Vn°ff  
Wr Lvffu v an• n" ffjvar" t nu\_rtr" p 39797 n" q 9798 7A<

: 479 [r.:r" @r d n" v@n d n" v@n Kr..z ..7; 3 B anu " n"t Kr.:@°  
[r.:.nu Un v Wr" ...© [r" -y" t Urynuv.n" J" nx Vnuv..Rvq •  
ar.nxuv.qvUno • n@" an" n" yar" t nu28686 qn" 8687  
[r.pr" ffitr -s Or..Wn..v.q d -z r" Ktrq 8<4 Cfrn.:°o aur Vn°ffLvffu  
Kfff" qn" ffv an• n" ffjvar" t nu\_rtr" p 39797 n" q 9798 7A=

: 47: T z ynu Jx°r • @...Kn... qn" Jyn@ U- " @n°r • °v n"t Mt " nxxn"  
Wr" ...© Urpnz n@n" qvUno • n@" an" n" yar" t nu28687  
Xffz or...s Xr Kppr • ff.:.n" q M- " ffnpr • ffr b°r q o ' ffoqvffvffs'  
an• n" ffjvar" t nu\_rtr" p 39798 7AA

: 47; T z ynu [n°n" t n" b°v n' o ...[b' /2J x°r • @..Jx@2qn" Jx°r • @...  
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' ffoqvffvffs' an• n" ffjvar" t nu\_rtr" p 39798 7B6

: 47< T z ynu S'°@° °v Ury n.t.n Kr.r." pn" n .UK/ qv Vn° n" t n" Wr" ...©  
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Xffz or...s Pnz y [yn" v t S'°fffff- o ' ffoqvffvff v an• n" ffjv  
ar" t nu\_rtr" p 39798 7B7

**DC RYRf R URg l h l bRe r l g s R**  
**hTbX/Xe d PdS ej WTh i e RXPb P U P X i**

: 47 T z ynu [r" q q x Wr" ...© Urpnz n@n" qn" Jtnz n n"t Mn" ©qv  
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- : 4B T z ynu ar z • n@[ r. xonqn@ " Wr " ...© Ur pnz n@ " qv Uno • n@ " an• n" yar " t nu 28687  
Xffz or...s [ ynr ° -s d -.: uv o ' ffoqvffpffn " q \_r yt v- " v' an• n" ffy ar " t nu \_rtr " p 39798 7B9
- : 4D T z ynu Mr ° n75Ury .nun" n" t Wr " t nyz vKr " pn" n J ynz 8Wr " ...© Ur pnz n@ " qvUno • n@ " an• n" yar " t nu 2867B 8686  
Xffz or...s cwynt r ° @Uryffinun" ffunff Rnq Xnffiny Nv n° ff. °. o ' ffoqvffpffv' an• n" ffyar " t nu \_rtr " p 3978C 9797 7B:
- : 4A T z ynu Trz nnu Rnw Wr " ...© Ur pnz n@ " qn" Tr " v' Ur ynz v' qv Uno • n@ " an• n" yar " t nu 28687  
Xffz or...s Rnw [ vt .v ° o ' ffoqvffpffn " q ' r v' an• n" ffyar " t nu \_rtr " p 39798 7B=
- : 4A T z ynu Trz nnu Rnwqn" Y " t x- ° . r . Y . n " t qvUno • n@ " an• n" y ar " t nu 2867; 38687  
Xffz or...s Rnw [ vt .v ° n" q M-ff . r . [ r . :- " v' an• n" ffy ar " t nu \_rtr " p 3978 < 49798 7BA
- : 4K T z ynu [ r . . xnun" Wr " ...© Ur pnz n@ " qv Uno • n@ " an• n" y ar " t nu 28687  
Xffz or...s Wn . wtr ° o ' ffoqvffpffv' an• n" ffyar " t nu \_rtr " p 39798 7BB
- : 4A T z ynu J x@ [ r . xn v n" n" t M@ . av@ n" Wr " ...© Ur pnz n@ " qv Uno • n@ " an• n" yar " t nu 28686 qn" 8687  
Xffz or...s Wn . wtr Mr . ffs p nff S ° ffr q o ' ffoqvffpffv' an• n" ffy ar " t nu \_rtr " p 39797 n" q 9798 866
- : 4A T z ynu [ r . xn . nLr . nvP t n@qn" Lr . nvanyx Wr " ...© Ur pnz n@ " qv Uno • n@ " an• n" yar " t nu 28687  
Xffz or...s Nv - . pr o ' ffoqvffpffv' an• n" ffyar " t nu \_rtr " p 39798 867
- : 4B T z ynu J x@ [ r . pr . nv n" n" t M@ . av@ n" Wr " ...© Ur pnz n@ " qv Uno • n@ " an• n" yar " t nu 28686 qn" 8687  
Xffz or...s Nv - . pr Mr . ffs p nff S ° ffr q o ' ffoqvffpffv' an• n" ffyar " t nu \_rtr " p 39797 n" q 9798 868



**D7D dVf H dltgRg URg i Vf SRgYngRg f Rgnl kR**

**f e l Thj o PdS Wkc Pd STI Tbe f c Tdj**

- : 4 4 P n.v. Urz v x v n" 2 T z ynu2 qn" [ r.:r" @r [ r" q q x W v x v qv  
Uno . n@" an" yar" t nu2867; 8687  
[- r.ff W r 3 X f f z or . n" q [ r. pr" f h r - s [ r - . y b" q r . ] - r. ff W r v  
an" n" f f y a r " t n u \_ r t r " p 3 9 7 8 < 9 7 9 8 4 ~~.....~~ 869
- : 4 4 S' q r x° U r q n y z n" U r z v x v n" . [ / q n" S' q r x° U r . n. n u n"  
U r z v x v n" . [ / q v U n o . n @ " a n . n " y a r " t n u 2 8 6 7 ; 8 6 8 7  
[- r. ff Q n . S' q r / [ 0 n " q [- r. ff ' r r. v f S' q r / [ 0 - s a n . n " f f y  
a r " t n u \_ r t r " p 3 9 7 8 < 9 7 9 8 ~~.....~~ 86:
- : 4 4 U - z . - " r " S' q r x° [ r z o n " t " n " W n " ° n . S W / U n o . n @ "  
a n . n " y a r " t n u q n " [ . : . v ° v ' z n @ . n b @ n . n 2 8 6 7 B 8 6 8 7  
M - z . - " r " f f - s R f f z n " N r r y . z r " f f S' q r / R N S - s a n . n " f f y a r " t n u  
\_ r t r " p n " q ' f f z n f f . n b f f . n [ . : . v p r 3 9 7 8 C 9 7 9 8 ~~.....~~ 86;
- : 4 4 T z y n u U r y n . t . n [ . n ' r w u @ . n S U ' S W r " ... © U r p n z n @ " 2 8 6 7 < 3  
8 6 8 7  
X f f z o r . . . - s [ . n [ . : . r . : . f f n " q 8 ° f f [ . : . r . : . f f P n z y o ' f f o q v f f p f f v  
a n . n " f f y a r " t n u \_ r t r " p 3 9 7 8 = 4 9 7 9 8 4 ~~.....~~ 86<
- : 4 4 T z y n u U r y n . t . n [ r " r . v z n W n " s n n © [ . : . t . n z U r y n . t . n R n . n " n  
. U [ W [ U R / W r " ... © U r p n z n @ " q v U n o . n @ " a n . n " y a r " t n u 2  
8 6 7 = 3 6 8 7  
X f f z o r . . . - s P n z y R - > r [ . : . t . n z z r / U [ W [ U R O \_ r p v v " f f o  
' f f o q v f f p f f v a n . n " f f y a r " t n u \_ r t r " p 3 9 7 8 A 4 9 7 9 8 ~~.....~~ 86=
- : 4 4 T z y n u U r y n . t . n [ r " r . v z n W n " s n n © [ . : . t . n z K n " © n " [ n " t n " X -  
a " n v . U [ W K [ X a / W r " ... © U r p n z n @ " q v U n o . n @ " a n . n " y  
a r " t n u 2 8 6 7 A 3 6 8 7  
X f f z o r . . . - s X - " 4 M n ° u P - - q K ° v f f " p r [ . : . t . n z z r \_ r p v v " f f / U [ W  
L [ X a o o ' f f o q v f f p f f v a n . n " f f y a r " t n u \_ r t r " p 3 9 7 8 B 4 9 7 9 8 ~~.....~~ 86A
- : 4 4 T z y n u [ r " r . v z n ' n " © " n " U r z n @ n " K n t v W n ° n . n x n © W v x v  
W r " ... © U r p n z n @ " q v U n o . n @ " a n . n " y a r " t n u 2 8 6 7 A 3 6 8 7  
X f f z o r . . . - s N r n f u M - z . r " ° n f f - " s - . . . f f i r [ - - . . . L r " r s p n . v . ° o  
' f f o q v f f p f f v a n . n " f f y a r " t n u \_ r t r " p 3 9 7 8 B 4 9 7 9 8 ~~.....~~ 86B

: 4 4 T z ynu U-.an" Kr" pn" n J ynz qn" ' -°vnyWr" ...©Ur pnz n©" qv  
Uno • n©" an• n" yar" t nu2867A3687  
Xffz or...-s Xnfffnyn n" q ' -pny Nv n°ff...c vpfz ° o ' ffoq vffv pff v'  
an• n" ffyar" t nu\_rtr" p 3978B497984 876

**DÆ dklf lg Rebrl**  
**RhX T**

: 4 4 T z ynu [r.v.© n Urwun©" Sry n" ttn.n" n" t Myn- .xn" qn"  
Mryr°nvn" Wr" ...©Tr" v Urwun©" Sry n" ttn.n" qvUno • n©"  
an• n" yar" t nu28687  
Xffz or...-s Mv r°cv-yfff- " \_r- .-ffq n" q \_r-yrq o a • r -sMv r°  
cv-yfff- " v an• n" ffyar" t nu\_rtr" p 397984 878

: 4 4 T z ynu [rynx Urwun©" Wr" ...© Tr" v Urynz v qn" Tr" v  
Ur wun©" qvUno • n©" an• n" yar" t nu28687  
Xffz or...-s Yssr" qr...-s a • r -s Mv r n" q ' r v an• n" ffyar" t nu  
\_rtr" p 397984 87:

: 4 4 T z ynu [r.xn.n [r.qn© n" t Wn° x qn" Mryr°nvn" [r" t nqyn"  
Xrtr.v' vo-yt n Ury n° S8687  
Xffz or...-s Mv wvff nff- " ' ffoz vffq n" q ' rffr q o M n° S' vo-yt n  
Nvffv pffM-ffi f89798 4 87<

: 4 4 T z ynu [r.xn.n [vq n" n n" t Wn° x qn" Mryr°nvn" [r" t nqyn"  
Xrtr.v' vo-yt n Ury n° SWr" ...©K yn" 28687  
Xffz or...-s Mv v nyMh°r ' ffoz vffq n" q ' rffr q o M n° S' vo-yt n  
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Xrtr.v' vo-yt n Ury n° S286763687  
**d x- R b w i x -z w z i- -z x R w X**  
**i x wS y R 4A898 5A8A9**

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Xrtr.v' vo-yt n Ury n° S286763687  
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Nvffv pffM-ffi f8978749798 4 87B

: 4 4 [r.xn.n [vq n" n n" t Wn° x qv[r" t nqyn" Xrtr.v' vo-yt n Ury n° S2  
8686 qn" 8687  
Mv v nyMh°r ' ffoz vffq nffM n° S' vo-yt n Nvffv pffM-ffi f89797 n" q  
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: 4 4A T z ynu [r.xn.n n"t Wn° x qn" Mw °xn" [r"tnqyn" Jtnz n  
[n"qn" Uryno SWr" ..CK yn" qvUno • n@" an• n" ywar"t nu28687  
Xffz or...s Mh°r 'ffoz vffq n"q' rffjq o Mjn° S\_rjtv-ff M-ffff-s  
[n"qn" o W-"ffu v an• n"ffjvar"t nu\_rtr"p 39798 887

: 4 4B T z ynu Un° ° Urxr.n°n" • nqn [r.rz • n" qn" J" nx Wr" ...©  
Urpnz n@n" qvUno • n@" an• n" ywar"t nu28687  
Xffz or...scv-y"pr Kt nv°ffd -z r" n"q Muvq.r." Mh°r o Nvffvppfv"  
an• n"ffjvar"t nu\_rtr"p 39798 889

: 4 46 T z ynu d n.t.n Kv nn" [rz n° n.nxn@n" Vrz ont n [rz n° n.nxn@n"  
Uryno S' 'vo-yt n Wr" ...©Tr" v [r.xn.nqn" K yn" 28687  
Xffz or...s\_r°qr"ff v' 'vo-yt n Mjn° SK [r"vf"ffn...o a • r -s Mh°r  
n"q W-"ffu39798 88;

: 4 47 T z ynu d n.t.n Kv nn" Vrz ont n [rz n° n.nxn@n" Uryno S' 'vo-yt n  
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Xffz or...s\_r°qr"ff v' 'vo-yt n Mjn° SK [r"vf"ffn...o 'r 39798 88B

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Xffz or...s\_r°qr"ff v' 'vo-yt n Mjn° SK [r"vf"ffn...o 'r 3978B4  
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: 4 49 T z ynu d n.t.n Kv nn" Vrz ont n [rz n° n.nxn@n" Uryno S' 'vo-yt n  
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Xffz or...s\_r°qr"ff v' 'vo-yt n Mjn° SK [r"vf"ffn...o N-z vjv 3  
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**DF i Vknf Ra Rg URg elg Ydng YRg**

**We ki XlV PdS Tdl Xe dc Tdj**

: 4 4 [r.:r" @r \_ z nu an"ttn Wr" ...© @° [r"t n°nn" Kn"t "n"  
arz • n©av"ttny n"t M@z • n@qv Uno • n@" an• n" ywar"t nu2  
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[r.pr"ffitr -s R-ffiru-yq o Y "r.:uv' fffffi -s aur N ryv't v'  
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[r.pr"ffitr -s R-ffiru-yq o aur Wnv' Wnff.vay -s  
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b@z n b" ©x Wrz n°nx qv Uno • n@" an• n" yv ar" tnu2  
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an• n" ffyar" tnu\_rtr" p 3978C49798 89B
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- : 4:46 [r.:r" @r \_ z nu an"ttn Wr" ...© arz • n©[ rz o n" t n" J v.Kr°n...  
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- 4:47 [r.:r" @r \_ z nu an" t t n Wr" ...©h°w@ ar z • n@ [rz o n" t n"  
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[r.pr" ffit r -sR-ffiru-yq o a-wrffPnpjff v' an• n" ffjyar" t nu\_rtr" p 3  
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- 4:48 [r.:r" @r \_ z nu an" t t n Wr" ...©U- qv'v' n" @nqvqUno • n@"  
an• n" yar" t nu2867B 38687  
[r.pr" ffit r -sR-ffiru-yq o ' n" vfh...M- qvff- "° v' an• n" ffjyar" t nu  
\_rtr" p 3978C49798 8: 9
- 4:49 T z ynu Vn n" n" qn" J yn@Vn n" n" b" ©x Wr" " w" t W' t x " t n"  
Rvq • qvUno • n@" an• n" yar" t nu28687  
Xffz or...s' r...px° n" q a- -j' ff' ff' • - .fffir O' v.: "z r" ff' an• n" ffjy  
ar" t nu\_rtr" p 39798 8: :

**E7 i VknRg lRg 5dVa n nRg Rg 5i VmVkg RdRg 5URg i VklRg Rg 8  
PVhXrk bj k hT4Ue hTi j ho4bX Ti je Ra4Pd S UX WTho**

**E7A a h k n t a n e m k R  
We hj Xrk bj k h T**

- 4:4 V n° [n" r" an" nz n" ' n .n" Wr" ...© Urpnz n@n" qn" Tr" v'  
an" nz n" qvUno • n@" an• n" yar" t nu .un/28686 qn" 8687  
Rn..r°ffq K.rn -s crtrffoy° o ' ffoqv'ffpffn" q Uv' q -s [yn" ffv'  
an• n" ffjyar" t nu\_rtr" p /un@9797 n" q 9798 8; =
- 4:48 [.:q x°van" nz n" ' n .n" Wr" ...©Urpnz n@n" qn" Tr" v' an" nz n"  
qvUno • n@" an• n" yar" t nu.x /28686 qn" 8687  
[.:qffpff- " -s crtrffoy° o ' ffoqv'ffpffn" q Uv' q -s [yn" ffv' an• n" ffjy  
ar" t nu\_rtr" p /" ffo@9797 n" q 9798 8; B
- 4:4 V n° [n" r" an" nz n" ' n .n" qn" K nu K nun" ' rz °v Wr" ...©  
Tr" v' an" nz n" qvUno • n@" an• n" yar" t nu2867B 38687  
Rn..r°ffq K.rn -s' rn°- " nycrtrffoy° n" q P.fff' o Uv' q -s [yn" ffv'  
an• n" ffjyar" t nu\_rtr" p 3978C49798 8<7
- 4:4 [.:q x°van" nz n" ' n .n" qn" K nu K nun" ' rz °v Wr" ...©  
Tr" v' an" nz n" qvUno • n@" an• n" yar" t nu2867B 38687  
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an• n" ffjyar" t nu\_rtr" p 3978C49798 8<8

- ; 474 V n° [n" r" an" nz n" Kv-sn.z. nxn Wr" ...© Urpnz n@n" qn" Tr" v̇  
an" nz n" qvUno • n@n" an• n" yar" t nu28686 qn" 8687  
Rn..r°ffq K.r.n -s Wr qvṗ ny[ yn" ff o ' ffoqv̇ffvpffn" q Uv̇ q -s [ yn" ffv̇  
an• n" ffyar" t nu\_rtr" p 39797 n" q 9798 8<9
- ; 474 [ .:q x°v an" nz n" Kv-sn.z. nxn Wr" ...© Urpnz n@n" qn" Tr" v̇  
an" nz n" qvUno • n@n" an• n" yar" t nu28686 qn" 8687  
[ .:qffpffr- -s Wr qvṗ ny[ yn" ff o ' ffoqv̇ffvpffn" q Uv̇ q -s [ yn" ffv̇  
an• n" ffyar" t nu\_rtr" p 39797 n" q 9798 8<
- ; 474 V n° [n" r" an" nz n" Kv-sn.z. nxn Wr" ...© Tr" v̇ an" nz n" qv  
Uno • n@n" an• n" yar" t nu2867B 38687  
Rn..r°ffq K.r.n -s Wr qvṗ ny[ yn" ff o Uv̇ q -s [ yn" ffv̇ an• n" ffy  
ar" t nu\_rtr" p 3978C 49798 8<
- ; 474 [ .:q x°v an" nz n" Kv-sn.z. nxn Wr" ...© Tr" v̇ an" nz n" qv  
Uno • n@n" an• n" yar" t nu2867B 38687  
[ .:qffpffr- -s Wr qvṗ ny[ yn" ff o Uv̇ q -s [ yn" ffv̇ an• n" ffyar" t nu  
\_rtr" p 3978C 49798 8<<
- ; 474 [ .:q x°vK nu3K nun" Wr" ...© Tr" v̇ an" nz n" qn" Urpnz n@n" qv  
Uno • n@n" an• n" yar" t nu.x /28686 qn" 8687  
[ .:qffpffr- -s P.fffff o Uv̇ q -s [ yn" ff n" q ' ffoqv̇ffvpffv̇ an• n" ffy  
ar" t nu\_rtr" p /ffv̇B9797 n" q 9798 8<=
- ; 4746 [ .:q x°v K nu K nun" qn" ' n .n" anu " n" Wr" ...© Tr" v̇  
an" nz n" qvUno • n@n" an• n" yar" t nu2867B 38687  
[ .:qffpffr- -sK" " ffyP.fffff n" q crtrffoyr° o Uv̇ q -s [ yn" ffv̇ an• n" ffy  
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**E7B i VkdVSngRg**

**TijPjTRhefi**

- ; 484 V n° J.r.nyan" nz n" [r.xr o " n" Wr" ...© Urpnz n@n" qn" Tr" v̇  
an" nz n" qvUno • n@n" an• n" yar" t nu.un/28686 qn" 8687  
[ yn" ffq K.r.n -s O'ffiff M.:.° o ' ffoqv̇ffvpffn" q a • r -s M.:.° v̇  
an• n" ffyar" t nu\_rtr" p /unB9797 n" q 9798 8=
- ; 484 [ .:q x°v[r.xr o " n" Wr" ...© Urpnz n@n" qn" Tr" v̇ an" nz n" qv  
Uno • n@n" an• n" yar" t nu.©"/28686 qn" 8687  
[ .:qffpffr- -s O'ffiff o ' ffoqv̇ffvpffn" q a • r -s M.:.° v̇ an• n" ffy  
ar" t nu\_rtr" p /ff- B9797 n" q 9798 8<

**E7C nRgRf Rg i RgYRg**

**Ue e S Rhe fi**

; 47 V n° J .r.nyan" nz n" [ nqvqn" [ nyn vW Wr" ...©Ur pnz n@n" qn"  
Tr" v an" nz n" qvUno • n@" an• n" ywar" t nu .un/28686 qn" 8687  
[ yn" ffq K.r.n -s [ nqq n" q' rp- "qn... P--q M--• ° o ' ffoqv'ffv'pffn" q  
a • r -s M--• ° v' an• n" ffjvar" t nu\_rtr" p /un09797 n" q 97984 8=A

; 48 V n° J .r.ny[ n" r" an" nz n" [ nqvqn" [ nyn vW Wr" ...©Ur pnz n@n"  
qn" Tr" v an" nz n" qvUno • n@" an• n" ywar" t nu .un/28686 qn"  
8687  
Rn..r°ffq K.r.n -s [ nqq n" q' rp- "qn... P--q M--• ° o ' ffoqv'ffv'pff  
n" q a • r -s M--• ° v' an• n" ffjvar" t nu\_rtr" p /un09797 n" q 97984 8A7

; 49 [ .:q x°v [ nqvqn" [ nyn vW Wr" ...©Ur pnz n@n" qn" Tr" v an" nz n"  
qvUno • n@" an• n" ywar" t nu .©"/28686 qn" 8687  
[ .:qffpff- " -s [ nqq n" q' rp- "qn... P--q M--• ° o ' ffoqv'ffv'pffn" q  
a • r -s M--• ° v' an• n" ffjvar" t nu\_rtr" p /ff" 09797 n" q 97984 8A:

**E7D i VmVkg RdRg**

**bX Ti je Ra**

; 44 [-• yn°var .:nx Kr°n..Wr" ...©Ur pnz n@n" qn" Tr" v ar .:nx qv  
Uno • n@" an• n" ywar" t nu .rx-. /28687  
Wr°ffpx [-• ffjnff- " o ' ffo Nv'ffv'pff n" q Uv' q -s Vr°ffpx v' an• n" ffjv  
ar" t nu\_rtr" p /urnq°097984 8A=

; 48 [-• yn°var .:nx Ur pyx Wr" ...©Ur pnz n@n" qn" Tr" v ar .:nx qv  
Uno • n@" an• n" ywar" t nu .rx-. /28687  
'z ny Mhffj [-• ffjnff- " o ' ffo Nv'ffv'pff n" q Uv' q -s Vr°ffpx v'  
an• n" ffjvar" t nu\_rtr" p /urnq°097984 8AA

; 49 T z ynu ar .:nx n" t Mv -©" t Wr" ...©Ur pnz n@n" qn" Tr" v  
ar .:nx qvUno • n@" an• n" ywar" t nu .rx-. /28687  
Xffz or .:s' ynfitt uff .r q Vr°ffpx [-• ffjnff- " o ' ffo Nv'ffv'pff n" q Uv' q  
-s Vr°ffpx v' an• n" ffjvar" t nu\_rtr" p /urnq°097984 8AB

; 44 [ .:q x°v Mht v' t ar .:nx Wr" ...©Ur pnz n@n" qn" Tr" v ar .:nx qv  
Uno • n@" an• n" ywar" t nu .x /28687  
Wrnf [ .:qffpff- " -s Vr°ffpx o ' ffoqv'ffv'pff n" q Uv' q -s Vr°ffpx v'  
an• n" ffjvar" t nu\_rtr" p /ff" 097984 8B6



; 4 4 [-· yn°var .°.nx b"tt n° Wr" ..©Urpnz n@n" qn" Tr" v ar .°.nx qv  
Uno · n@" an· n" yar" t nu.r x-. /28687  
[-·ffff.. [-· ffynffr- " o 'ffoqvffvffn" q Uv q -s [-ffjff.. v' an· n" ffjy  
ar" t nu\_rtr" p /urnq°B97984 8B7

; 4 4 [-·q x°vMnt v t b"tt n° Wr" ..©Urpnz n@n" qn" Tr" v b"tt n° qv  
Uno · n@" an· n" yar" t nu.x /28687  
Wrnff [-·qffpfr- " -s [-ffjff.. o 'ffoqvffvffn" q Uv q -s [-ffjff.. v'  
an· n" ffjyar" t nu\_rtr" p /ffvB97984 8B8

**EÆ i VklRgRg**

**UX WTho**

; 4 4 T z ynu \_ z nu an"tt n qn" V n° J.rnyK qvqn n Wr" ..©Tr" v  
[r. x n" n" K qvqn nqvUno · n@" an· n" yar" t nu28687  
Xffz or...s R-ffru-yq° n" q K.r n° -s K" ffnppffjffir. o Uv q -s  
K" ffnppffjffir. v' an· n" ffjyar" t nu\_rtr" p 39798 8B9

; 4 4 T z ynu [-·q x°v [r. x n" n" K qvqn n Wr" ..©Tr" v Sxn" qv  
Uno · n@" an· n" yar" t nu28687  
a-ffj [-·qffpfr- " -s K" ffnppffjffir. o Uv q -s Pv u v' an· n" ffjyar" t nu  
\_rtr" p 39798 8B:

; 4 4 T z ynu [-·q x°v [r. x n" n" K qvqn n Wr" ..© a.v. yn" qv  
Uno · n@" an· n" yar" t nu28687  
Xffz or...s K" ffnppffjffir. [-·qffpfr- " o ] ffn. ff .v' an· n" ffjyar" t nu  
\_rtr" p 39798 8B;

; 4 4 [-·q x°v [r. x n" n" an"tx n· Wr"tt " nxn" Un· nyMon nu ; Pa  
Wr" ..©Tr" v Sxn" qvUno · n@" an· n" yar" t nu28687  
Mh· fffir. Pv ur... [-·qffpfr- " b°v t L-nff b" qr..< Qa o Uv q -s Pv u v'  
an· n" ffjyar" t nu\_rtr" p 39798 8B<

; 4 4 T z ynu [-·q x°v [r. x n" n" an"tx n· Wr"tt " nxn" Un· nyMon nu  
; Pa Wr" ..©a.v. yn" qvUno · n@" an· n" yar" t nu28687  
Xffz or...s Mh· fffir. Pv ur... [-·qffpfr- " b°v t L-nff b" qr..< Qa o  
] ffn. ff .v' an· n" ffjyar" t nu\_rtr" p 39798 8BA



**F7 VgVkYBURg tJ Unl mkl87dThVo PdS XlSki j ho**

**F7A VgVkYb**

**TdThVo**

- <44 Mn nar .: .n°n"t2 [ .-q x°v2qn" M°@w °vW°@x [ a4[ VX .[r .:r .-/  
• nqnLnon"t [ VX ' wo-ýt n28686 qn" 8687  
S°ffiy r q [- r.3[ .-qffpfr- n"q N°ffwofffr- -s Orffvpff -s [ a5 VX 4  
' wo-ýt nL.n"pu39797 n"q 9798 96;
- <44B c-y z r W°@x ar .wnyqn" Xvny[r" wny" W°@x [ a4[ VX .[r .:r .-/  
• nqnLnon"t [ VX ' wo-ýt n28687  
' ny° Orpffvpff c-yffz r n"q cnyfr o W-"ffu -s [ a5 VX 4 ' wo-ýt n  
L.n"pu39798 96<
- <44D c-y z r [ rz nxnvn" qn" Xvny[r" wny" W°@x Wr" ...@K yn" qn"  
Tr" v [ rynttn" • nqnLnon"t [ VX ' wo-ýt n28687  
M-"ffz r q Orpffvpff c-yffz r n"q cnyfr o W-"ffu n"q a • r -s  
M-"ffz r .-s [ a5 VX 4 ' wo-ýt nL.n"pu39798 96=
- <44 T z ynu [ rynttn" 2c-y z r2qn" XvnyJv.Wv z n"t M°ny .xn"  
-yu [ MJ W Wr" ...@Urpnz n@" qvUno • n@" an" yvar"tnu2  
8687  
Xffz or...-s Mffffz r .:3 c-yffz r3 n"q cnyfr -s N.v.xv't dnff...  
Nvffwoffffq o [ NKW o 'ffoqvffvpffv an"n"ffvar"tnu\_rtr"p 39798 96B
- <44 T z ynu [ rynttn" 2c-y z r2qn" XvnyJv.Wv z n"t M°ny .xn"  
-yu [ MJ W Wr" ...@Un@t-.v.[ rynttn" qvUno • n@" an" yv  
ar"tnu28687  
Xffz or...-s Mffffz r .:3 c-yffz r3 n"q cnyfr -s N.v.xv't dnff...  
Nvffwoffffq o [ NKW o Mhft-... -s Mffffz r .v' an"n"ffvar"tnu  
\_rtr"p 39798 976
- <44K T z ynu [ rynttn" 2c-y z r2qn" XvnyJv.Wv z n"t M°ny .xn"  
-yu [ MJ W qvUno • n@" an" yvar"tnu2867A 8687  
Xffz or...-s Mffffz r .:3 c-yffz r3 n"q cnyfr -s N.v.xv't dnff...  
Nvffwoffffq o [ NKW v' an"n"ffvar"tnu\_rtr"p 3978B 9798A 977



**F7B lq Unl mkb**

**X/Ski j ho**

- <84 T z ynu b°nunſ[r...°nunn" qn" ar" nt n Ur .w Wr" ...© Un@t- .v.  
Vn· n"t n" b°nun qvUno · n@" an· n" yar" t nu2867<  
Xffz or...s O'ffhoy'uz r" ff n"q d -.xr.:.o S' qffiffvny Mhfft-... v'  
an· n" ffjvar" t nu\_rtr" p 3978= 978
- <84 T z ynu b°nunſ[r...°nunn" qn" ar" nt n Ur .w Wr" ...© xny n b°nun  
qvUno · n@" an· n" yar" t nu2867<  
Xffz or...s O'ffhoy'uz r" ff n"q d -.xr.:.o Lffv' r°° ' pny v' an· n" ffjv  
ar" t nu\_rtr" p 3978= 979
- <84 Kn" nx" n b°nunſ[r...°nunn" Wr" ...© ' @°° Knqn" b°nun qv  
Uno · n@" an· n" yar" t nu2867<  
Xffz or...s O'ffhoy'uz r" ff o a · r -s Lffv' r°° O' ffff v' an· n" ffjv  
ar" t nu\_rtr" p /ffi v' 03978= 97:
- <84 Urt vn@ [r" qns@.n" S v' qn" X- S v' qv Uno · n@" an· n" y  
ar" t nu Urnqn" K yn" Tn" n.v.°5q Mr°r z or... qv Uno · n@"  
an· n" yar" t nu28686 qn" 8687  
Vpr"°r n"q X- Vpr" pr \_rt v' ffnfv- Kpffv vfr° s.-z Tn" ffn... ff  
Nrprz or..v' an· n" ffjvar" t nu\_rtr" p 39797 n" q 9798= 97;
- <84 T z ynu S' q °@v. Ur py qn" Wr" r" t nu Wr" ...© Urpnz n@" qn"  
Un@t- .vS' q °@v. qvUno · n@" an· n" yar" t nu28687  
O'ffhoy'uz r" ff-s 'z ny n"q Wrqvffz S' qffiff.. o ' ffoqv'ffv'ff n" q  
Mhfft-...-s S' qffiff..v' an· n" ffjvar" t nu\_rtr" p 39798= 97A
- <84 T z ynu [r...°nunn" 5b°nun S' q °@v. [r" t -ynun" Wr" ...© ' xny n  
[r...°nunn" qn" Urpnz n@" qvUno · n@" an· n" yar" t nu28687  
O'ffhoy'uz r" ff-s Wn" ffnpffiv. t S' qffiff..o Mhfft-...-s S' qffiff..n" q  
' ffoqv'ffv'ff an· n" ffjvar" t nu\_rtr" p 39798= 97B
- <84 T z ynu ar" nt n Ur .w [ nqn [r...°nunn" 5b°nun S' q °@v. [r" t -ynun"  
Wr" ...© xny n [r...°nunn" qn" Urpnz n@" qvUno · n@" an· n" y  
ar" t nu28687  
Qz · y- rr nff Wn" ffnpffiv. t S' qffiff.. o Mhfft-... -s S' qffiff..n" q  
' ffoqv'ffv'ff an· n" ffjvar" t nu\_rtr" p 39798= 986



<84 T z ynu [ r...°nunn" 5b°nun qn" ar" nt n Ur .w Wr" ...©Tr" v b°nun  
qn" Ur pnz n@n" qvUno • n@" an• n" yar" t nu28687  
Xffz or...s O'ffoyuz r" ffn" q Qz • y- rr o S' qffiff..n" q' ffoqv'ffv'pff'  
an• n" ffjvar" t nu\_rtr" p 39798 987

<84b T z ynu [ r...°nunun" 5b°nun Kr .qn°n.xn" Knqn" b°nun J WMI V2UV5  
b[ V2qn" ' [ [ V28687  
O'ffoyuz r" ff-sM-z • n" dffv' r° Wn" qnff...Kz qny n" q bUV6b[ V  
Lffv' r° O' ffff 39798 98A

**G7 i Rklp B RnR8j e khXc**

=7 T z ynu \_ z nu Wxn" 5\_r°@.n" Wr" ...©Ur pnz n@n" qvUno • n@"  
an• n" yar" t nu2867A 8687  
Xffz or...s\_r°ffiffin" ff o ' ffoqv'ffv'pff' an• n" ffjvar" t nu\_rtr" p 3  
978B 9798 99=

=8 T z ynu R-@yqn" Jx-z -qn°v Vnv" n2Unz n.2qn" arz • n@aq ...  
Wr" ...©Ur pnz n@n" qvUno • n@" an• n" yar" t nu28687  
Xffz or...sR-ffjy' ffr .Kpp-z z -qnff- " 3\_--z n" qLrqo ' ffoqv'ffv'pff'  
v' an• n" ffjvar" t nu\_rtr" p 39798 99A

=9 T z ynu R-@yqn" Jx-z -qn°v Vnv" n Wr" ...©Ujn°vxn°v qv  
Uno • n@" an• n" yar" t nu2867A 8687  
Xffz or...sR-ffjy' ffr .Kpp-z -qnff- "° o Mjn°vsnff- " v' an• n" ffjv  
ar" t nu\_rtr" p 3978B 9798 99B

=4 av' t xn@ [ r" t u " vn" Unz n. .R-@y. a[ U/ qn" \_n@ 3\_n@ Vnz nanz  
Wr" t v n• Wr" ...©Ujn°vsnxn°vqn" K yn" qvUno • n@" an• n" y  
ar" t nu28687  
\_--z ° Yppffn" p \_nff /Y\_0 n" q K r. ntr Vr" t ffu -s' ffi o  
Mjn°vsnff- " v' an• n" ffjvar" t nu\_rtr" p 39798 9: 6

=4 av' t xn@ [ r" t u " vn" Unz n. .R-@y. a[ U/ qn" \_n@ 3\_n@ Vnz nanz  
Wr" t v n• qvUno • n@" an• n" yar" t nu2867; 38687  
\_--z ° Yppffn" p \_nff /Y\_0 n" q K r. ntr Vr" t ffu -s' ffi v' an• n" ffjv  
ar" t nu\_rtr" p 3978<49798 9: 7

=4 Yowx3Y owx d v n@ Wr" ...©Ur pnz n@n" qn" Tn. rx qn. v[ n" qn" qv  
Uno • n@" an• n" yar" t nu28687  
a-ffv'z Yowpff o ' ffoqv'ffv'pffn" q Nv'ffn" pr s.-z [ n" qn" 39798 9: 8



=4 T z ynu U " w" t n" d v n n" J ° v t q n" X ° n" n. n. qv Uno • n @ "  
an• n" yar" t nu 28687  
Xffz or...s P-.rxt " n" q N-z r ° ff p a-ffiv.ffc v v fff a-ffiv:z Yowpff v'  
an• n" ff yar" t nu \_rtr" p 39798 9: 9

=A T z ynu Lnt n..K qn n Wr" ...©Ur pnz n n" qv Uno • n @ "  
an• n" yar" t nu 28687  
Xffz or...s Mffjffiny Rr.vfht r o ' ffoqv v ff pff v' an• n" ff yar" t nu  
\_rtr" p 39798 9: :

**H7 mkRgli hknRI bURg dhf ngldRI lB  
j hPdi fe hjPj Xed PdS Rec c kdXPj Xed**

**H7A mkRgli hknRI b  
j hPdi fe hjPj Xed**

A474 [n" w" t Tyn" Wr" ..©av t xn © Ur r" n" t n" [rz r.v. © un" qv  
Uno • n @ "  
an• n" yar" t nu. xz /2867A 8687  
Vr" t ffu -s \_-nq o ' fffff v' an• n" ff yar" t nu \_rtr" p /xz B978B4  
9798 9: 7

A474 [n" w" t Tyn" Wr" ..©Tr" v [r.z. xnn" Tyn" qn" Ury n° Tyn"  
J ° nyqv Uno • n @ "  
an• n" yar" t nu. xz /2867A 8687  
Vr" t ffu -s \_-nq o a • r -s ' fffsnpr n" q K ° unyff q Mjn ° v' an• n" ff yar  
ar" t nu \_rtr" p /xz B978B49798 9: 8

A474 [n" w" t Tyn" Uno • n @ " Wr" ...©U- " qv v Tyn" qv Uno • n @ "  
an• n" yar" t nu. xz /2867A3687  
Vr" t ffu -s \_rtr" p \_-nq o M- " qvf- " ° v' an• n" ff yar" t nu \_rtr" p  
/xz B978B49798 9: 9

A474 T z ynu qn" [n" w" t Trz on n" Wr" ...©Ur pnz n n" qv Uno • n @ "  
an• n" yar" t nu 28687  
Xffz or..n" q Vr" t ffu -s L.vqt r ° o ' ffoqv v ff pff v' an• n" ff yar" t nu  
\_rtr" p 39798 9: ;

A474 T z ynu [r...° nunn" qn" J.z. nqn J" tx n" bz z n" t Wrz yxv  
S v a. n rx Wr" ...©Tr" v J" tx n" bz z qv Uno • n @ "  
an• n" yar" t nu 28687  
Xffz or...s M-z • n" n" q aur Pyrff-s [ffoy p a.n" ° -. fffv- " Y " v' t  
\_ffff [r.z. vff o a • r v' an• n" ff yar" t nu \_rtr" p 39798 9: ;



A474 Mns@.Xnz n[r...°nunn" J"tx @n" bz z qn" T z ynu J.z.nqn qv  
Uno • n@" an• n" ywar"t nu28687  
M-z • n" Xnz r n"q a-ffiy[ffoy p a.n"°.-.ffiff- Pырffv' an• n" ffjv  
ar"t nu\_rtr"p 39798 9;<

A474 Mns@.Xnz n[r...°nunn" J"tx @n" Kn.n"t qn" T z ynu J.z.nqn qv  
Uno • n@" an• n" ywar"t nu28687  
'uv•v't M-z • n" Xnz r n"q Xffz or...s Pырffv' an• n" ffjvar"t nu  
\_rtr"p 39798 9;=

A474 T z ynu Ur"qn.nn" Kr.z.-@... n"t ar.qns@.5Wrz on n...[nmax  
Wr" ...@K yn" qn" Tr"v Ur"qn.nn" qvUno • n@" an• n" ywar"t nu  
. " 28687  
Xffz or...s W-ff..crupyr°\_rtv'ff.rq6[n v't an r° o W-"ffu n"q  
a • r-scrupyr v' an• n" ffjvar"t nu\_rtr"p /ff' vffB9798 9;A

A474 Kn" nx" n' .n@Sv Wr"trz qv.' SW/ n"t M@.av@xn" Wr" ...@  
Tr"v" nqv[-y.r.° an• n" ywar"t nu28687  
Xffz or...sN.v.v't W'pr"°r°S°ffrqo Nv'ffvpff[-ypr Yssyr -san• n" ffjv  
ar"t nu o a • r-scrupyr 39798 9<6

A4746 Kn" nx" n' .n@Sv Wr"trz qv.' SW/ n"t M@.av@xn" Wr" ...@  
Tr"v Ur ynz v' [rz -u- qv[-y.r.° Uno • n@" an• n" ywar"t nu28687  
Xffz or...sN.v.v't W'pr"°r°S°ffrqo Nv'ffvpff[-ypr Yssyr -san• n" ffjv  
ar"t nu o K• ypr" ff' r 39798 9<9

A4747 Kn" nx" n Ur pr yxn n" Vny W' @° qn" U-.an" n"t ar .pn@°qv  
[-y.r.° an• n" ywar"t nu28687  
Xffz or...s a.nssyp Kppqr" ff n" q c v'ffz \_rp-.qr q v' Nv'ffvpff[-ypr  
Yssyr -san• n" ffjvar"t nu39798 9<

**H7B dhf ngldRI b**  
**Re c kdRPj X d**

A474 T z ynu Un" @...[-° Lnon"t [rz on" @ Wr" ...@ Ur pnz n@n" qv  
Uno • n@" an• n" ywar"t nu2867A 8687  
Xffz or...s[-°ffY ssyr°' ffo°qvn.v.r° L.n" pu o 'ffoqv'ffvpffv' an• n" ffjv  
ar"t nu\_rtr"p 3978B 497984 9<

A474 T z ynu ' .n@[-° n"t Mxvz Wr" ...@K yn" qn" Tr"v' .n@[-°  
qvUno • n@" an• n" ywar"t nu28687  
Xffz or...s[-°ffiy Wny' r"ffo W-"ffu n"q U'q -s [-°ffiy Wnyv'  
an• n" ffjvar"t nu\_rtr"p 39798 9<<

- A84 Qrx r"°vqn" Xvnbnt" d r°ry[-° n"t M@.v n qn" Mon n...  
Wr" ...@K yn" qvUno • n@" an• n" yar"t nu28687  
P.r."ffr"p n"q Kz -ffr ff-s [-°ffhy W-"r Y.qr.∴' r"ffn"q [nq o  
W-"fū v' an• n"ffyar"t nu\_rtr"p 39798 9<=
- A84 J...° [r°n n@[r" z • n"t 2Knt n°vKn.n"t 2qn" [-° [nrx @Mhynz  
Xrtr.vWrny vKn"qn.bqn.nOva-o v't 866<38687  
aur Py- -s [yn"r°3[n°°r"tr.∴3Vff t ntr°3Q--q° n"q N-z r°ffp [-°ff  
[npxntr° au.∴ff t PVa-o v't Kv.∴.fb977=49798 9<A
- A84 T z ynu Un" @..S°@n"°v [rz r. v' @nu Mnr.nu Uno • n@" an• n" y  
ar"t nu n"t Wrz vvxv Tn.v't n" S°@..r°qv Uno • n@" an• n" y  
ar"t nu28687  
Xffz or...s\_rtv"nyQ- r."z r"ffY ssp r°-s an• n"ffyar"t nu\_rtr"p  
ffnffrn v't S'ff."rffXrf -x.v' an• n"ffyar"t nu\_rtr"p 39798 9=6
- A84 T z ynu ' @°v " \_nqv- Wr" ...@Ur• rz vvxn" qn" Qrx r"°v n qv  
Uno • n@" an• n" yar"t nu28687  
Xffz or...s\_nqv- ffffr-° Kpp-.qv't ff fūr Y "r.∴uv n"q P.r."ffr"p  
v' an• n"ffyar"t nu\_rtr"p 39798 9=7
- A84 [r.∴r" @°r [r" q q xKr...z .; .anu " Ur J @n" n"t Wr"tt " nxn" 5  
Wrz vvxvary • -" ' ry y ..qn" Wr"tt " nxn" U-z • @..Mhynz 9  
K yn" ar.nxuv.Wr" ...@Tr" v Ur ynz v' 28686 qn" 8687  
[r.pr"fftr -s [-° fffnfr- Ktrq < frn.∴.n"q Y r..d u- b°r @n r  
M yffn. [u-"r n"q b°r M-z • ffff .Nffiv't aur Vn°ff: W-"fū° o ' r v'  
an• n"ffyar"t nu\_rtr"p 39797 n"q 9798 9=8

**17 dhi VkrI BURg i vKSrgdRg8Re e f ThPj X T PdS QPdaXlV**

- B4 T z ynu U• r.n°v Wr" ...@ Urpnz n@n" qv Uno • n@" an• n" y  
ar"t nu2867A38687  
Xffz or...s M-• r.nffv r Lffv r°° b" vfo ' ffoqvffvff v' an• n"ffv  
ar"t nu\_rtr"p 3978B 49798 9=
- B8 T z ynu U• r.n°v Wr" ...@ Tr" v' qn" Urpnz n@n" qv Uno • n@"  
an• n" yar"t nu. " v' 28687  
Xffz or...s M-• r.nffv r Lffv r°° b" vfo a• r° n"q ' ffoqvffv v'  
an• n"ffyar"t nu\_rtr"p /fff vfb 9798 9=A
- B4 T z ynu U• r.n°v Wr" ...@ Ury-z • -x b°nun U• r.n°v qn" ' @n°  
Urnx@sn" qvUno • n@" an• n" yar"t nu. " v' 28687  
Xffz or...s M-• r.nffv r Lffv r°° b" vfo M-∴.∴.nff Lffv r°° Q..ff



- n" q Kpffr vff ' ffffff /ff/ vff 9798 9=B
- B4 T z ynu Un" ©...Kn" x Wr" ...© Ury-z • -x Kn" x qv Uno • n@"  
an" yar" t nu2867B qn" 8686  
Xffz or...sLn" x Ysspr o Q.-ffr -sLn" x v' an" n" ffjvar" t nu\_rtr" p 3  
978Cn" q 9797 9A7
- B4 [-°v v [ v waz n" • nqn Kn" x bz z Wr" ...©' rx©...Nx-" -z v qv  
Uno • n@" an" yar" t nu...• vnu/28686  
Yfffff" qv' t -s V-n"° -s M-z z r.pnyLn" x° o Qp-" -z p' r pff..v'  
an" n" ffjvar" t nu\_rtr" p /.ff vnu° 9797 9A9
- B4- T z ynu\_rxr" v' t qn" [-°v v [ v waz n" • nqn Kn" x bz z Wr" ...©  
K yn" qn" ' xny n Kv" v qvUno • n@" an" yar" t nu28686  
Xffz or...s Kpp-ffr ff n" q Yfffff" qv' t -s V-n"° -s M-z z r.pnyLn" x°  
o W-" ff" n" q Lffv' r°°' pny v' an" n" ffjvar" t nu\_rtr" p 39797 9A;
- B4- T z ynu\_rxr" v' t qn" [-°v vano " t n" 2Mr• -°v 2qn" Pv.: [ nqn  
Kn" x bz z qvUno • n@" an" yar" t nu28686  
Xffz or...s Kpp-ffr ff n" q Yfffff" qv' t ' n v' t °3 av r Nr• -°v f 3  
n" q Nr z n" q Nr• -°v f -s M-z z r.pny Ln" x v' an" n" ffjv ar" t nu  
\_rtr" p 9797 9A=

**A97 i Vg Y Ven Rk Rg i Vg Un Und 8 f e f k b Pj X e d Tnf Td S X k h T**

- 764 \_n@3\_n@ [r" try n.n" • r...Un. v@ ' ro yn" Wr" ...© Ury-z • -x  
U-z -qv@° ...• vnu/qvUno • n@" an" yar" t nu28686 qn" 8687  
W-" ffy K r.ntr O• r" qvffir. • r..Mh• vfh o M-z z -qvff Q.-ffr v'  
an" n" ffjvar" t nu\_rtr" p /.ff vnu° 9797 n" q 9798 9BB
- 768 [r.:r" @r [r" try n.n" • r...Un. v@ ' ro yn" Wr" ...© Ury-z • -x  
U-z -qv@° qvUno • n@" an" yar" t nu28686 qn" 8687  
[r.pr" ffitr -s W-" ffy K r.ntr O• r" qvffir. • r..Mh• vfh o M-z z -qvff  
Q.-ffr v' an" n" ffjvar" t nu\_rtr" p 39797 n" q 9798 : 66
- 769 [r.:r" @r [r" q q x Wr" ..© P-y" t n" [r" try n.n" [r..Un. v@  
' ro yn" qvUno • n@" an" yar" t nu28686 qn" 8687  
[r.pr" ffitr -s [-° ffyffr-" o W-" ffy [r..Mh• vfh O• r" qvffir. Mn° v'  
an" n" ffjvar" t nu\_rtr" p 39797 qn" 9798 : 67

764 [r.:r" @r [r" try n.n" Wr" ..© P-y" t n" [r" try n.n" [r...  
Un. @' ro y n" qvUno . n@" an. n" yar" t nu28686 qn" 8687  
[r.pr" ffitr -sM-" ffz . ff- o W-" ffy . r..Mh. vfh O . r" qvffir.Mj n°°  
V' an. n" ffjvar" t nu\_rtr" p 39797 qn" 9798 ~~4~~ : 68

764 \_n@3\_n@[r" try n.n" . r..Un. @. r..K y n" .... vnu/qn" [r.:r" @r  
\_n@ 3\_n@[r" try n.n" . r...Un. @. r...K y n" Wr" ..© Tr" v  
U-" ° z °vqvUno . n@" an. n" yar" t nu2867; 38687  
K r.ntr . r..Mh. vfh W-" ffy O . r" qvffir./ffv nu°0n" q [r.pr" ffitr -s  
K r.ntr . r..Mh. vfh W-" ffy O . r" qvffir.o a . r -sM-" ffz . ff- V'  
an. n" ffjvar" t nu\_rtr" p 3978< 9798 ~~4~~ : 69

764 Mv@w °v\_n@3\_n@[r" try n.n" . r..Un. @' ro y n" [r" q q x qv  
Uno . n@" an. n" yar" t nu . r.:r" /28686 qn" 8687  
Nvffvofff- -s O . r" qvffir. K r.ntr . r..Mh. vfh -s [- ffjnf- -s  
an. n" ffjvar" t nu\_rtr" p /r.pr" ffB9797 n" q 9798 ~~4~~ : 6:

**AA7 I b nVf g VkrRTR kVYth g Reš oi j Tc e UhTVXè dPbPRRe kdji**

774 [ .:q x M-z r°@x\_rtv-" nyK...© J @ Mn°n.Rn.t.nKr.ynx Wr" ..©  
Vn. n" t n" b°nun qvUno . n@" an. n" yar" t nu .z vjn.... vnu/2  
867= 8687  
Q.:°\_rtv-" nyN-z r°ffp [ .:qffpffnffMfi.r." ffWn.xrff] .vpr° o S' qffiff..  
V' an. n" ffjvar" t nu\_rtr" p /ovjv- .ffv nu°B978A 9798 ~~4~~ : 7B

774 [ .:q x M-z r°@x\_rtv-" nyK...© J @ Mn°n..Rn.t.nU-" @n" 8676  
Wr" ..©Vn. n" t n" b°nun qvUno . n@" an. n" yar" t nu .z vjn...  
.. vnu/2867= 8687  
Q.:°\_rtv-" nyN-z r°ffp [ .:qffpffnff9787 M-" °ff" ffWn.xrff] .vpr° o  
S' qffiff..V' an. n" ffjvar" t nu\_rtr" p /ovjv- .ffv nu°B978A 9798 ~~4~~ : 87

774 Mv@w °v[r.:r" @r [ .:q x M-z r°@x\_rtv-" nyK...© J @ Mn°n..  
Rn.t.n Kr.ynx Wr" ..©Vn. n" t n" b°nun qvUno . n@" an. n" y  
ar" t nu2867= 8687  
[r.pr" ffitr Nvffvofff- -sQ.:°\_rtv-" nyN-z r°ffp [ .:qffpffnffMfi.r." ff  
Wn.xrff] .vpr° o S' qffiff..V' an. n" ffjvar" t nu\_rtr" p 3978A 978C~~4~~ : 89





- 774 Vnw [r. @z o un" [ .:q x M-z r°@x \_rtv-"nyK...@ J@° Mn°n...  
Rn.t.n U-"°@n" 8676 Wr" ..@Vn· n"t n" b°nun .r.:r" /2867=  
8687  
Q.:. ffi \_nff -s Q.:°° \_rtv-"nyN-z r°ffp [ .:qffpffnff9787 M-"°ff" ff  
Wn.xr ff [ .vpr° o S'qffff..v' an· n" ffjvar"t nu\_rtr"p /r.pr" ffB978A  
9798 4:8;
- 774 S'qrx° Rn.t.n S· y'v@ [ .:q x M-z r°@x \_rtv-"nyK...@ Wr" ..@  
Vn· n"t n" b°nun qvUno · n@" an· n" yar"t nu2867=38687  
S· y'pff [ .vpr S'qpr° -s Q.:°° \_rtv-"nyN-z r°ffp [ .:qffpffo S'qffff..  
v' an· n" ffjvar"t nu\_rtr"p 3978A49798 4:8=
- 774 Vnw [r. @z o un" S'qrx° Rn.t.n S· y'v@ [ .:q x M-z r°@x \_rtv-"ny  
K...@ Wr" ..@Vn· n"t n" b°nun .r.:r" /2867=38687  
Q.:. ffi \_nff -s S· y'pff [ .vpr S'qpr° -s Q.:°° \_rtv-"nyN-z r°ffp  
[ .:qffpffo S'qffff..v' an· n" ffjvar"t nu\_rtr"p /r.pr" ffB 978A 4  
97984:8B
- 774 [ .:q x M-z r°@x \_rtv-"nyK...@ J@° Mn°n.Rn.t.n Kr.ynx Wr" ..@  
Tr"v [ r"try n.n" qvUno · n@" an· n" yar"t nu .z yjn....· nu/2  
867A 8687  
Q.:°° \_rtv-"nyN-z r°ffp [ .:qffpffnffMfi.r." ffWn.xr ff [ .vpr° o a · r  
-s O· r"qvffir.v' an· n" ffjvar"t nu\_rtr"p /ovjv-" .ff vnu°B978B  
97984:97
- 774 [ .:q x M-z r°@x \_rtv-"nyK...@ J@° Mn°n..Rn.t.n U-"°@n" 8676  
Wr" ..@Tr"v [ r"try n.n" .z yjn....· nu/ qvUno · n@" an· n" y  
ar"t nu2867A 8687  
Q.:°° \_rtv-"nyN-z r°ffp [ .:qffpffnff9787 M-"°ff" ffWn.xr ff [ .vpr° o  
a · r -s O· r"qvffir.v' an· n" ffjvar"t nu\_rtr"p /ovjv-" .ff vnu°B  
978B 97984:99
- 774 [ .:q x M-z r°@x \_rtv-"nyK...@ [ r.xn· v@n Uno · n@" an· n" y  
ar"t nu ...· nu/2867<38687  
Q.:°° \_rtv-"nyN-z r°ffp [ .:qffpff [ r.pn· vf an· n" ffjvar"t nu\_rtr"p  
/ff vnu°B978=497984:9;

**AB7 i VksRgUlgYRg RgnRk dRSni RmVg8  
dhnr8f he l XlRTRe c fPhXe d**

784 [r"q q x2 Vnw [r.⊙z o un" [r"q q x2 Mv⊙w °v [r.∴r" ⊙r  
[r"q q x2 Ur•nqn⊙" [r"q q x2 qn" \_n°v- Tr"v Urynz v'  
[r"q q x Wr" ...⊙Uno • n⊙" 5U-⊙ qv [ ∴. v°v' z n⊙.n b⊙.n2  
8686 qn" 8687

[[-• ffynff- " 3 [-• ffynff- " Q.∴. fū \_nff3 [r.pr" fht r Nvffvoffff- "  
-s [-• ffynff- " 3 [-• ffynff- " Nr"°vf3 n"q 'r \_nff- o \_rtr"p 6  
Wfff vpx nyff v' fffz nff.n.bffh.n [ ∴. v' pr 39797 n" q 9798 ~~.....~~ ::;

784 Vnw [r.⊙z o un" [ ∴.q x M-z r°⊙x \_rtv- " nyK...⊙ J⊙° Mn°n...  
Rn.t.nU- " ⊙" 8676 Wr" ...⊙Uno • n⊙" 5U-⊙ qv [ ∴. v°v' z n⊙.n  
b⊙.n. • r.∴r" /2867=38687

Q.∴. fū \_nff -s Q.∴.°° \_rtv- " nyN-z r°ffp [ ∴.qffpffnff9787 M- " °ffh" ff  
Wn.xrff [ .vpr° o \_rtr"p 6Wfff vpx nyff v' fffz nff.n.bffh.n  
[ ∴. v' pr /r.pr" ff8978A 9798 ~~.....~~ :: B

784 T z ynu [r"q q x Wv xv' Wr" ...⊙Uno • n⊙" 5U-⊙ qv [ ∴. v°v'  
' z n⊙.n b⊙.n.n. ∴w /2867= 8687

Xffz or...s [-... [-• ffynff- " o \_rtr"p 6Wfff vpx nyff v' fffz nff.n  
bffh.n [ ∴. v' pr /ff-ffn" q8978A 9798 ~~.....~~ :: 7

784 S' qrx° [rz on" t " n" Wn" °vn Wr" ...⊙Uno • n⊙" 5U-⊙ qv  
[ ∴. v°v' z n⊙.n b⊙.n.n2867= 8687

Rffz n" Nr ry-z r" ff S' qr o \_rtr"p 6Wfff vpx nyff v' fffz nff.n  
bffh.n [ ∴. v' pr 3978A 9798 ~~.....~~ :: 8

784 [ ∴.q x M-z r°⊙x \_rtv- " nyK...⊙ [r...Un• v⊙ J⊙° Mn°n..Rn.t.n  
Kr.yax Wr" ...⊙Uno • n⊙" 5U-⊙ qv [ ∴. v°v' z n⊙.n b⊙.n.n. ∴w  
...• vnu/2867=38687

Q.∴.°° \_rtv- " nyN-z r°ffp [ ∴.qffpff [r..Mh• vfh nffMfi.r." ffWn.xrff [ .vpr  
o \_rtr"p 6Wfff vpx nyff /ff-ffn" q° .ff vnu°8978A 49798 ~~.....~~ :: 9

784 b• nu Wv v z [ ∴. v°v. bW [ / qn" b• nu Wv v z Uno • n⊙" 5  
U-⊙. bWU /z r" ...⊙Uno • n⊙" 5U-⊙...• vnu/2867B 38687

[ ∴. v' pny Wv v fffz d ntr /bW [ 0 n" q ffr \_rtr"p 6Wfff vpx nyff  
Wv v fffz d ntr° /bWU o \_rtr"p 6Wfff vpx nyff /.ff vnu°8978C 4  
9798 ~~.....~~ ::;







<https://tapanulitengahkab.bps.go.id>

## i VgcVeRI Rg nf nf 8nf bPdPje ho de j Ti

an" qn3n" qn2°n° n" 3°n° n" 2qn" yv' 3n' " n n" t qxt " nxn" qnyz • oyxn°v  
 v' vngnyu °r ont nvor .x @  
 ' z o-y'3z rn°ffirz r" ffff' vf3n" q np.:" z ° uvp n.r.frrq v' fuv° • ffoypnff- " 3n.r.  
 n° s-y- °C

### A7nRg UR6nRg UR8 oc Qe bi

Mn@ @qnx @ .:rqn5Nnff " -ffn nyno 4 C 44  
 avqnx nqn n@ " -ySX ffy-...r. : 4 C  
 Mn@ qn- n@qnonxn" 5Nnff " rt yt voy 4 C6  
 an" qn qr pz ny5Nrpz ny- -v' ff4 C2  
 Mn@ @qnx qn- n@q@z • yxn" 5X -ffn • yyno 4 CXJ  
 J " t xn r° @ n° 50'ffz nffq st ffr.° 4 Cr  
 J " t xn qv r .anxδ\_ r Vrq st ffr.° 4 C...  
 J " t xn° rz r" @.n5 .ryz v' n...st ffr.° 4 C  
 J " t xn° n" t n° rz r" @.n5cr... .ryz v' n...st ffr.° 4 C  
 J " t xn° n" t n° rz r" @.n5cr... r... .ryz v' n...st ffr.° 4 C

### B7I RmRg 8dX i

on.r)5on..ry 4 C 7; A2BB y@ .5yfr.° F 75-2BABA z 9  
 urx@n...un/5ur pff.r./un0 4 C 76 666 z 8  
 xy-z r @ ...xz /5xy-z rffr.° /xz 04 4 C 7 666 z r @ .5z rff.° /z 0  
 x" -5x" -ff4 C 72; 89 xz 5mz .xz 6u-ffl.  
 x v' @y5' ffv' ffy 4 C 766 xt  
 Ud u 4 C 7 666 d n@u-ffi..  
 Wd u 4 C 7 666 Ud u  
 y@ ... " @ x or .n° /5yfr./s-...vr 0 4 C 626 xt  
 WW' LO 4 C 759; 2 z 9  
 z r @x @ . z @ /5z rffv pff" /z 5ff" 04 4 C 6BA: 87 y-" t @ " F 7 666 xt  
 -" °5-ffl pr 4 C 8A27 t .nz 5t .nz °  
 @ " 4 C 7 666 xt

' n° n" yv' Co nu2q °2o @2ur yv5y z on.2xny" t 2on@n" t 2. y' n2@- xy-z r @ ...  
 .@- 3xz /2mz 2z r" v@. r. :r" . + /4  
 Y ffr . ffl' vff' vB' vB- npx3- v pr °3urr fBff' 3- ffy' r 3ff- " 4xy-z r ffr.° /ff- " 4xz 0Bu-ffi.3.  
 z v' ffff 3- r.pr" ff/, 05

[r.arqnn" n" t xnqvoryxn" t x-z nqv'ronoxn" -yru°rz o yn@n" n" t xn4  
 aur qvssr.r." pr v' qrpz ny" ffz or.°v' pffrrq o .:ff' qv' t 5



**URWtRk l bY dRnRg 8bX j e UPQqHtI XpJ Xe di**

' S	C ' @°v " Sxyz
' SW[ U	C ' @°v " Wr@-..y-t v[r.@°n" v" Uu ° °
@@	C ar z • n@@q ...
KLP	C Knpvy ° Lnyz r@@ P r.v.
M[ a	C M@s@.v[r. @°vZar @° °
aa	C ar @° ° a- -vq
Sya	C S' q °@v.Y on@a.nqVv-" ny@a.nqVff-" nyWr qvpv' r S' qffff..
SJYa	C S' q °@vUr pyY on@a.nqVv-" ny@a.nqVff-" nyWr qvpv' r ' z nyx
J yx°	C J yn@xr°r un@° 5Rrnyffu Uff
[ U_a	C [r.arxyn" Ur°r un@° _ z nu @° t t n5R-ffru-yq Rrnyffu V-t v'ffp°
U-z • y	C U-z • yz r" 5M-z • yz r" ff
S_a[	C S' q °@v[ n" t n" [ .:q x°v_ z nu an" t t n5P--q° R-z r S' qffff..
[ KO	C [rqnt n" t Kr°n. Ch.z n°v[ un.z. np d u-yr 4ryy...
PCU	C P qn" t Ch.z n°vUho5U-@5_rtr" p 5Wfff p* nyff [ un.z. np d n.r.u-ffr
_K	C _ z nu Kr. :ny' 5Nryy r...R-ffr
[ °@	C [ °xr°z n° • rz on" @ 5Kffi yyn...[ fföypRrnyffu M" ff...
K[	C Knynv[r" t-on@° 5[-y py' v
a[ '	C ar z • n@[ rz o n" t n" ' rz r" @.n5n" qsyx
Tnz xr°z n°	C Tnz v" n" xr°r un@° z n° n.nxn@z v'xv' 5[ --. :fföypurnyffu v'ffin" pr
[ TUWb	C [ .:t .nz Tnz v" n" Ur°r un@° Wn° n.nxn@bz z
' Sb[	C ' .n@Sv b°nun[r.qnt n" t n" 5a.nqVt [r.z. v°v-" Vr fff...
aM[	C an" qn Mns@. [r...°nunn" 5M-z • n" _rt v'ffnff-" Sqr" ffff
J [ S	C J "t xn[r" tr" nyx • -. @.5x • -. ff...:Sqr" ffff Xffz or...



**I d 5B9AI B9BA**  
**a- i w y 4A89H A8A9**

h z x 6R..z	ix x 6k	978F	9797	9798
/80	/90	/: 0	/; 0	/- 0
<b>dY dH U6AZ MKV</b>				
awes v ± <sup>99</sup> 6a ≤ ffi zsf <sup>72</sup>	..s6 v sfi	: >=>	: <8>>	: =8: 77
Us..aw flt zs≤awes v ±6a ≤ ffi zsf Q ≤ y <sup>9</sup>	w wes v tvfi	93;	83<=	83-8
J sy± Qs s s ≤ Q v <sup>8</sup> 4y6/zw 0 vt rft cr v'	sz <6 vr	⇒7A	⇒8<	⇒9;
J sy± V wfi±Q xf -5 8< 6/zv rt cr v Kxvu 7; 1	w wes v tvfi	BA3<	BA3;	BA37
e sy± as --s -j sy± s ≤ Tw s.4eal <sup>T831</sup>	w wes v tvfi	>83 B	>738	>7<
Vrs ≤ P≤tvar zrz zsf cr v3Pac <sup>722</sup>	w wes v tvfi	>83 B	>738	>7<
e sy± awes sy s ≤ ewt ±4ae <sup>831</sup>	w wes v tvfi	>83 B	>738	>7<
f flvfi ffe fi vfi cr v3c <sup>722</sup>	w wes v tvfi	>83 B	>738	>7<
Ps -Twfi -±s ≤6a ≤ 1/2lv	s25 xy	: >; >	; 7==	; 9B7<
aw wes wawes v ±V -±s <sup>av</sup> tvfi rxv swa ≤ av ≤ ffi	w wes v tvfi	893<	893 A	893>
Rsv± awfi± sy s ≤ V s ≤ 54a v 6R fi rfi Nv vfi fi vfi 9lv =	-sv± 6fluv	-A3A=	-B3:	-B3-8
cs -P ≤ 6Qz zcr zc	≤	73 7B	73 : <	73B9
<b>NYVWV RCONZ YZWSM</b>				
a v ±M fl w ±cvj -s fK /aMcKQs ys Kwfi± <sup>3A</sup>	fi fis sz	B B <⇒A	87 8: A3A:	87 -8A3<
Q ≤ cvxzsfir ffil sfi v zL ≤ QcNa/r M vfi a zv <sup>A2</sup>	s 6ffsi xy			
Us..aw flt zs≤N± ≤ fl <sup>3A</sup> 6Qz sfi z Q ≤ y <sup>A2</sup>	w wes v tvfi	<3A	473<	93<
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**BAB**  
Chapter

**01**

# **GEOGRAFI DAN IKLIM**

*Geography and Climate*

<https://tapanulitengahkab.bps.go.id>





<https://tapanulitengahkab.bps.go.id>

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j TRWdXPb de j Ti

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 fffvff -s urv uff /z z 0 no- r ffor  
 u-.v.-"ffiy °ffisnpr vs ffor.r. v -  
 r n°-.nff-"3.fff-ssn"qv syffaff-"5  
 \_nv'sny b"vf v z z 3 v pu5

8; 5 On°-.nff-" -s nff..v° n .:pr°°  
 ffunffpun"tr° s.z y ffig ff n°-.5.  
 a- q- ffv 3 nff..."rrq° -"r -s  
 °r r.ny p-"qvf-"° n.r. v° .ynpr5

8<5 Kv.. ffz .r.nffir.° v qv nff ffor  
 qrt.r r -s u-ff nv.5. 'w .y3 ffor  
 ut ur... ffor ffz .r.nffir. 3 ffor  
 u-fff...ffor nv.5 Wp.:°p° vny 3  
 ffor ffz .r.nffir.°u- ° ffor r"r.t.  
 .-°r°r°q o nv.5Onpu nff-z v ffor  
 nv.rnpu z - r 3or vfv ffor s-z.  
 -s qv° ynprz r"ff-...z - rz r"ff v  
 ffor v.nff-"5 aur ut ur...r"r.t.  
 ffor nff-z ° z nxv t ff ffor nv..3  
 ffor ut ur...ffor nv.ffz .r.nffir. 5

8=5 Rffz qvff v ffor qrt.r r -s rff r°°  
 v ffor nv.p-"qvf-"r q orpnffir ffor  
 nff..v° ny n ° p-"ffv r q v ffor  
 s-z. -s nff...n°-.5.aur p-"ff" ff  
 -s nff... n°-...v ffor n.z. nv..  
 z -.r. ffun" ffor p-"ff" ff -s nff...  
 n°-...v ffor p-yq5 aur "ffn" fff  
 ffunff v -sff" ffrq ff r .r.°°



n"t °r.v.t qv nxnv "©x  
 z r" n@xn" xryz onon" qn.n  
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 qv x ..qr"tn" °.°x.-z r@..n@  
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 or...onu°r° nv@z • n@qn" nx©4  
 [nqn °n"t un.v. xryz onon"  
 "vov or.n"t° ... n"t° ..©..."  
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 z r" wyn"t • nt vor .@z onu or°n.4.

7=4 Ur pr • n@n" n"t v nqnyu  
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uffz vqvf v fur .rynfvr uffz vqvf  
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 -..u t .-z rff.°5\_rynfvr uffz vqvf  
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 .rynfvr uffz vqvf t.nqffny  
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 fff ffy fur z -."v"t trff ovtr.5.

8A5 d v q °.rrq v fur °.rrq -s nv..  
 z - v"t u-.v.-" fhyy nffn urv uff-s  
 ff - z rff.°no- r fur t .-ff q5aur  
 nv...r.°ffir. qvsv.r."pr orff rr"  
 fur -.v" n"q qr°ff nffv- -s fur  
 v"q v n snpff...ffinff qrrf.z.v"r°  
 fur °.rrq -s fur v"q5 d v q  
 °.rrq pn" or z rn°ffir q fffv"t n"  
 v°ffffz r"ffnyrq n" n"rz -z rff.5.  
 K"rz -z rff...ff•r z -°ff vqry  
 fffrq v fur pff n"rz -z rff.5.

$\frac{Y}{U} - \text{ATA}$  e d m d m m  
 1 2B9BA  
 U - bw - i xz y jw w j- w h- - y  
 0 - y- 1A8A9

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d fl t w6d≤ tvD Ksvs≤aw s s s z s ≤V6 -s fl Tst s w s s s f r e v s y z 6Yr z s l r f f i r f l u K x v f l t s n e r r f l i f e v f l x r y c v x v f l t





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**A7A dVRRRg YVhYkRWb**  
**VTe VhPf Wb Re dSj Xd**

**m** **A7A** **e U c i f d**  
**jvw -** **d m m 5B9BA**  
**j w P -ww z d x- X w z x i xz y jw w**  
**j- w h- - y 4A8A9**

a.zx xx o fl	Wj xa.zx xx <sup>B</sup> Wf fi o fl <sup>E</sup>	b x <sup>9</sup> p fi U ff <sup>A</sup> / <sup>9</sup> 6 B 0
/80	/90	/: 0
a<=>y -	a<=>y -	>A3 9
Ksv—	U <=>	89B3 B
d†sts<=> ≤	d†sts<=> ≤	9A; 3<
U fl	Jw±Psfllt-	87<BA
d †sts<=> ≤	a fi as±± R	;B3 >
as<=>s≤	as s Ks	:: 3 8
e ±±	e ±±	8<7B:
ds v±	a <=> ±Ks	9<B9
es <=>W6 fi-	es <=>W6 fiRR	A: 3 8
d-sz -	W6 fi-	<73<
T fi<=>	T fi<=> W6 fi-	:: =B
d †sfl	d †sfl	A73=8
d †sfl Ks s	d †sfl Ts<=>	:: 3A
as s † e t<=>	as s † e t<=>	87: 3 =
Ks	asvs<=> V s <=>	983A8
d Psv <=>	d Psv <=>	8; : 3:
J<=>sfll Mw -	c<=> K fi±	8993 9
Ks f s s	Q sy<=>	= 39
Vs<=> sfl s	as s Y<=>Vs<=> sfl s	BB3<<
d-s<=> <=>	Ks.sfl s	A>3<
<b>jx x j... x</b>	<b>fx -x</b>	<b>98FAFE</b>

Vn" w@n" anor ySM- " ff' ffr q anoy 7447

a.zx x x o fl	f..... x ..... x-x b x axy x ... l fi n U fi	Y x f x : j fl e fi 6
/80	/;0	/<0
a-s>y -	:3<>	4
Ksv—	<B7	:
d†sts>y ≤	89B>	4
U fl	;3:	4
d †sts>y ≤	9B<	4
as>vs≤	83=<	8
e †s	=A>	4
ds v±	8BA	4
es -s≤V6 fi-	:3A	97
d-sz -	93 7	4
T fi>y	8B3A	4
d †sfl	:3>	4
d †sfl Ks s	93:	8
as s † e t>y	;38	4
Ks	7BB	8
d Psv >y	=9	8
J>sfl Mw -	<3A	8
Ks f s s	93A>	4
Vs>y sfl s	;3;	;
d-s>y >y	;37	4
jx x j... x	87737	:9

d fl tw6ds tvD \*Kad3avesvs ssa ve-Mws/a vw06Lad dr z z Sflu>lv a 2gaffixva>vfl a flir r Maffit zdl  
 †Ksvs≤aw s>szs≤V6 -sflTst s wses s≤ fiwesy sz6lr zslr flir flu Kxvlt >ver r fl fiwvixry cvxvlt  
 †Ms Tw6 s≤vs≤aw>ss≤Tst s wses s≤ fiwesy sz6lrvfl r flu Pzyv Z tv>ner r fl fiwvixry cvxvlt

m  
jwx -

A7A7

d p c b d  
f d d m m 5  
B9BA

P z-w z S wy- Rw w h- - y x i xz y  
jw w j- w h- - y 4A8A9

a.zx x x o fl	a... x m x x / - 0 U 1 fiBB2	Yx x ..W xaxy x ... Y fi Wfi fi n
/80	/90	/:0
a-sy -	: 4 : <	99
Ksv—	7 4=77	89
d-tsts-y ≤	7 48 88=	: 7
U fl	7 4 A77	9=
d -tsts-y ≤	7 A77	<9
as-s-s ≤	; 4 AA	4
e ±s	7 A77	<
ds v±	7 4>9	9
es -s≤V6 fi-	7 A77	98
d-sz -	977 4 A77	98
T fi-sy	7 A77	: >
d -sfl	7 4 =7	; <
d -sfl Ks s	7 4 <A	; <
as s t e t -y	8: 4; 8=	=B
Ks	7 4: =	≠
d Psv -y	7 4A7<	=9
J -sfl Mw -	7 4: B	AA
Ks f s s	7 4=	A7
V s -y sfl s	7 4=7	87A
d-s -y	7 4; 77	B=
jx x j... x	7 48 8CC	4

d fl t w6d ≤ tvD KadBawes s s s a ws -Mws /a vw06Lad dr z z Slu-slv z 2g2ffixva ≤ vfi x flnr r Maffi z fl

A7B

dVRURRg ldeif  
RbX Pj TRe dS Y Xe d

m  
jvx - A7A i n b f S l  
f d bbV67m m m 5B9BA  
ex - w R w-T- - x c w Ub6 x  
Rw Xxc - - i w jw w j- w h- - y 4  
A8A9

0 x i	i			a.....xyyx / .....0		
	p	fi	PW	d	1	2
/80	/90	/:0	/:0	/:0	/:0	/:0
Ss ≤ s - Tr fl r	9737	9>37	::;37	<37	A;37	87737
awt s - Pvs r	9737	9>37	:<37	::;37	A738	BA37
V s w Wr ty	9837	9>37	:<37	;B37	A>37	87737
J -fi K ffi	9837	9>37	::;37	<37	A<37	87737
V w- Wr	9837	9>37	::;37	<37	A>37	BB37
S ≤ - T flv	9737	9>37	::;37	<37	A;3;	BA37
S fi- T ffi	9737	9>37	::;37	;B37	A<3A	BB37
Jy K x	9737	9>37	::;37	<37	A>37	87737
dw vfl tw dv vfi sv	9737	9>37	::;37	<37	A<3=	BB37
Y ± tw Zt ≤ v	9737	9>37	::;37	;=37	A;3A	BB37
W vfl tw Y ≤ vfi sv	9737	9>37	:<37	<37	A>37	87737
Mwvfl tw Nvtvfi sv	9737	9>37	::;37	<37	A>37	87737

Vn" w@" anor yM- " ff' ffr q anoy 784

0 x i	a.z..x x N / 6..0		j..x x k-x x			
	s r	1 C 2	U	l	/ yx 0	
	c	hx x4 x x U fi	c x i fi	c	hx x4 x x U fi	c x i fi
/80	/A0	/B0	/870	/880	/890	/8: 0
Ss ≤ s - Tr fl r	Lsffi	837	8; 37	877937	877>3 7	878737
awt s - Pvs r	Lsffi	837	8<37	877: 37	877>37	87883 7
V s w Wr ty	Lsffi	837	8>37	877937	877>37	878937
J fi K zfi	Lsffi	837	9937	877; 37	877A37	878937
V w- Wr	Lsffi	837	8; 37	877837	877>37	878837
S ≤- T flv	Lsffi	837	9; 37	877737	877A37	878: 37
S fi- T ffi	Lsffi	837	8<37	877737	877A3 7	878937
J y K x	Lsffi	837	8<37	877: 37	877A37	878937
dw vfl tw dv vfi sv	Lsffi	837	8A37	877: 37	877A37	878: 37
Y ± tw Zt ≤v	Lsffi	83 7	8>37	877: 37	877A3<7	878: 37
W vfl tw Y ≤vfi sv	Lsffi	837	8<37	877: 37	877>37	87893 7
Mwvfl tw Nvtvfi sv	Lsffi	837	8>37	877: 37	877A37	878937

Vn" w@n" anor yM-" ff' ffr q anoy 784

$0 \ x$ $i$	$Y \ x \ P \ x \ V \ x$ $j \ fl \ l \ fi$ $/ \ 0$	$Y \ x \ Vx \ V \ x / x \ 0$ $j \ fl \ nfi \ Yfi$ $1 \ fi \ 2$	$f \dots \ xx \ cx \ xx$ $/ \ \dots \ 0$ $Y \ fi \ o$ $1 \ 2$
/80	/8; 0	/8-0	/8=0
Ss ≤ s - Tr fl r	8B: 3>	89	: 837
awt s - Pvs r	B: 37	87	=737
V s w Wr ty	; A83 7	9:	: =37
J fi K zfi	: A: 3>	8A	; 83>
V w- Wr	99 > 37	8B	: = 3 7
S ≤- T flv	: ; 93>	8A	; > 3>
S fi- T ffi	99 > 3 7	8;	; 83 7
J y K x	: < > 3 7	99	: A37
dw vfl tw dv vfi sv	9BB37	8B	: 93>
Y ± tw Zt ≤ v	8B93>	89	: 937
W vfl tw Y ≤ vfi sv	: 8737	9:	: : 3 7
Mwvfl tw Nvtvfi sv	= 7 3 7	98	: > 37

d fltw6d ≤ tvD d s - ≤ V ww fiy-Twis RRROUSE t-ye es s ≤ fiwvysz6P4e-s zix Mfi SSSWv v ≤ s ffx dr zdl sner rfl ffevfixry  
cvxvft adrlfx ≤ zds sdr

**BAB**  
Chapter

**02**

# PEMERINTAHAN

*Government*

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**i VgCvERl Rg mVdgB**

**j TRWdXPb de j Ti**

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 • r" ry" ttn.nn" ...n"  
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85 V-pny t- r.:z r"ff v ffr  
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 nssnv.°o ffr V-pnyQ- r.:z r"ffn"q  
 M-ffl py-s \_r.°r° ffffr° Nnr.nu  
 on°r -s • .v.°v -s nffff"-z  
 n"q qffff -s n°°vffh"pr vfu ffr  
 • .v.°v -so.°nq nffff"-z vfu v  
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 -s ffr \_r° ffoxp -s S'q-"r°v n°  
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 \_r° ffoxp -s S'q-"r°v frn..8C: <5  
 Q- r.:z r"ff\_rtv-"° v S'q-"r°v  
 p-"°vff -s [.. v°v pnyQ- r.:z r"ff  
 n"q .rtv-"ny Q- r.:z r"ff -s  
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 orr" "ffnyvrq n° n°ry pff...ffv qr...  
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 .v uffff -ff nfffur •-yvt °fffv-  
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 pn"qvnff° n.r.fu-°r u- fffv s-.ffv

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 [r...nxvn" \_nx n@ n@ Mr n"  
 [r...nxvn" \_nx n@ Mhr.nu4

yrtvynffir3-...:..:° rpfvr z rz or...  
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 \_rtv-ny\_r°.r:r" fffvr r° M-ffr py5

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 "° ... • r" ry"ttn.nn"  
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 qn" .p/4 z r" n@xn" • r"qn.n@

=5 [n.ynz r"ff v° ffr • r-°y°  
 .r°.r:r" fffvr o-q n.rn n"q  
 °r...r°n°n"ryz r"ff-sfur .rtv-ny  
 nqz v°vffaff-°5 [n.ynz r"ff un°  
 yrtvynffir sffr pff-°3 offqtrff..3  
 n"q - r.:xt ufb [n.ynz r"ffun° ffr  
 qfff n"q nfff-..vf 5 [n.ynz r"ffun°  
 ffr .xt uffff-D/n05 vff .:rynyff-°E/L05  
 "ff°ff-°"nvr.°E n"q /p05 -°v°v°5

=4 Jyn© xry"txn°n" M[\_M @.qv.v.  
 n@Cn/4 v • v°n" Do/4x-z vDp/4  
 • n"v@n z ° n.n.nuD.q/4°n"v@n  
 n"ttn.n"Dr/4Knqn" Ur u-.z.n@n" D  
 qn" .s/4 nyn© xry"txn°n" yv  
 n"t qv r.y.xn"4 J"tt-@  
 M[\_M z rz • " nv unx qn"  
 xr nwon"4 J"tt-@ M[\_M  
 z rz • " nv yn.n"tn" qn" qn° n@  
 qtn" @ n" @... nx©4 Ur @ "©n"  
 @ " @t M[\_M °r°n" w"t @qnx  
 qn©... qnyz b"qn"t3b"qn"t  
 z r"tr"nv.rz r.v@un" qnr.nu  
 or.ynx xr@°©n" b"qn"t3  
 b"qn"t n"t z r"tn©...  
 ' ° "n" qn" Urq q xn"  
 W[\_2 M[\_2 M[\_M2 qn" M[\_M4

A5 N[\_N svffv°t° p-°vff -sD /n05  
 ynqr.E /L05 p-z z v°v-°E /M05  
 p-z z vffr qryor.nff-°E /N05 ffr  
 offqtrff p-z z vffrE /005 R-°..n...  
 L-n.qE n"q /s05 -ffir...°rpx°n...  
 svffv°t°5 K°rz oy Wrz or.:.un r  
 .xtuff n"q -oyt nff-°5 Wrz or.:.  
 -s [n.ynz r"ff un r .r:ffvff-°  
 n"q pn" or .r:ynprq - r...fz r5  
 M-°qvff-° -s [n.ynz r"ff ff ffr  
 r ff"ff"-ff .rtffnyffq v° ffr Vn  
 p-°pr.:v°t y-pny t- r.:z r"ff  
 n°y ffr •.: v°v-° -s fur Kpff  
 t- r.:v°t ffr K..n"trz r"ff n"q  
 ffr W[\_3 N[\_3 N[\_N n"q N[\_N5

A4 J"tt-@ Mr n" [r...nxvn"  
 \_nx n@ Mhr.nu .M[\_M qv wvu  
 z ryny v • rz wun" z z  
 .rz w/ qn" qyn" @x qnyz  
 z n°n wmon@n yz n @nu "4

B5 \_rtv-nyR-ffir -s\_r°.r:r" fffvr r°  
 /N[\_N0 z rz or.:. n.r.  
 ryppffq fu.-fftu n tr"r.ny  
 ryppff-° n"q n°-v°ffq s-...  
 n svr4rn.:. z rz or.:uv 5

B4 ' ° "n" • rz r.v. @un"  
 Uno • n@" an• n" yw ar"tnu  
 • r.v:qr 867= 8688 @.q.v.v.  
 qn.v. o • n@ nxvy o • n@2  
 qn" • r.n"txn@ qnr.nu  
 °ront nv "° ... r" ry"tt.n.  
 • rz r.v. @un" qnr.nu4

764 [r.n"txn@Mnr.nu n"t @.qn• n@  
 qvUno • n@" an• n" ywar"tnu  
 nqnyu °ront nvor.vx @  
 n4 'rx.r.@.vn@Mnr.nu  
 o4 S'° rx@.n@  
 p4 M' n° Mnr.nu  
 q4 [-y'v[nz -"t [.nwm  
 r4 'rx.r.@.vn@M[\_M  
 s4 Vr z ont nar x" v' Mnr.nu  
 t4 Ur prnz n@"  
 u4 Ury .nun" 5Mr°n4

774 [rt n nv Xrtr.v. ' v wy .[X' /  
 nqnyu °r@n• n.t.n "rt.n.n  
 \_r• oxyx S'q-"r°vn n"t  
 @ynu z rz r" uv ° n.n@ n"t  
 qv@"©xn" qn" qv"txn@ -y.u  
 • r.won@ n"t or...r"n"t qn"  
 qvr.nuv ©tn° qnyz wmon@  
 "rtr.vh@ qvr.nuv©tn°"rt.n.n  
 yn" n qn" qv nw or.qn°n.xn"  
 • r.n@.n" • r..."qn"t3 "qn"tn"  
 n"t or.ynx 4 [X' @.q.v.v.  
 qn.v. [X' [ °n@ qn" Mnr.nu4

784 \_rny'nv [r"r.vz nn" qn"  
 [r"try.n.n" [rz r.v. @u  
 Uno • n@" nqnyu .rny'nv°v  
 • r.u@ "tn" J[ KM Uno • n@"  
 • nqn @n• @u " n"tt.n.n" 4

C5 aur t- r.:z r"ff °ffffffir. -s  
 an• n"ffiy ar"tnu \_rtr"p • r.v:q  
 978A@799 p-"°vff -s \_rtr"ff3  
 cpr \_rtr"ff3 n"q \_rtv"ny  
 K• n.nffff n° ryz r"ff -s  
 V-pny Q- r.:z r"ff Y.tn"vr.:5

875 aur \_rtv"nyNr vpr°v an• n"ffiy  
 ar"tnu \_rtr"p n.rD  
 n5 aur \_rtv"ny'r.rff.vaff  
 o5 S'° r pff.nff  
 p5 V-pnyKtr"pr°  
 q5 M w' r...vpr [-ypr  
 r5 \_rtv"nyR-ffr -s  
 \_r•.r:r"fffr r°K°rz oy  
 'rp.rff.vaff  
 s5 \_rtv"nyarpu"vnyS'°ffffff  
 t5 'ffqv'ffvff  
 u5 b.on" cwnt r 6cwnt r5

885 Mv w' r...n"ff /[X' 0v r r...pvfr"  
 -s fur \_r• ffvyp -s S'q-"r°vn funff  
 upuorr" qrfz.z.vrq rxt voy3  
 or n• -v'ffqo fur p-z • rff"ff  
 nffff- .vff n"q n°vt"rq furff°x  
 v' fur p-ffl ff.. -sspr3 -...pun.tr  
 -s -fur... p-ffl ffv.° n"q • nq  
 on°rq -" fur ytvynff- n"q  
 .rtffynff- 5M-°vff -s fur pr"ffny  
 nq" .rtv"ny pv wy °r..n"ff5

895 Kpffny .r.r"ffi n"qr • r"qvffir.  
 -s \_rtr"p Q- r.:z r"ff v' fur  
 .rny nff- 6 \_rt.r:p offqrff  
 pnyffynff-° s...r r... sv'pny rn.5.

794 [r"qn•n@ J°y Mnr.nu  
 .[JM nqnyu •r"qn•n@  
 n"t qv r.ryu qnr.nu  
 n"t qv "t © or.qn°n.xn"  
 •r.n©.n" qnr.nu °r° nv  
 qr"tn" •r.n©.n" •r..."qn"t3  
 "qn"tn"2 t "n xr•r.y.n"  
 qnr.nu n"t or.°n"tx @"  
 qnyz z rz ovn nv xrtvn@" n4

8: 5 Y.ut v nyV-pnyQ- r.:z r"ff\_r r"ff  
 v .r. r"ff funff vfuryq on°rq -"  
 y-pny .rt ffynff-"° v npp-.qn"pr  
 vfufur yt v ynfv-"3-.ffur•ffs.-°r°  
 -s sv"n"pv"t fforv.. npfv vfr"5

7: 4 Mh"n [r.v on"tn" nqnyu qn"n  
 n"t or.°: z or..qn.v: r"qn•n@  
 J[KX n"t qny-xn°xn"  
 xr•nqn qnr.nu "©x z r"qn"nv  
 xro ©un" qnr.nu qnyz .n"txn  
 •ryx°n"nn" qr°r"©ny°n°v4

8; 5 Lny"prqLffqt rffv fur sff' qp-z v't  
 s.-z fur °ffff offqt rfffunfny-pnff q  
 ff .rt v-"° ff sff'q furv.."rrq° v'  
 fur p-"ff ff -s qpr"ffny nffv-"5

7; 4 VnV 3nV [r"qn•n@ n"t 'nu  
 nqnyu •r"qn•n@ yv" n qn.v.  
 •rz r.v@u • °n©qn" n@ qn.v.  
 v°@°v • °n©°r.@ qn.v.qnr.nu  
 yv" n4

8<5 Yfur... Vrt ny \_r r"ff v' -fur...  
 v'p-z r funff p-z v't s.-z fur  
 pr"ffay t- r.:z r"ff n"q -..s.-z  
 fur pr"ffaynt r"pr°3n° rynn°s.-z  
 -fur.y-pnyt - r.:z r"ff

<https://tapanuli.berkas.bps.go.id>



<https://tapanulitengahkab.bps.go.id>



$\frac{Y}{U}$  — **B7A**    c    i    g    l    f    c  
 d    m    m    5U    **B9BA**  
 d x- R i- w x eyy w    jw w    j- w  
 h- - y 4S -y- x- A8A9

<https://tapanulitengahkab.bps.go.id>

d fl tw6d wC Ksvs≤Tw wys s-s≤Mwsz Tst s wses s≤ frewysz6cvxzfrrfllz fflv zv Kxvft sver rfi ffevflxry cvxvft





<https://tapanulitengahkab.bps.go.id>

**B7A** p keRsRa RUf kg b mkRmbW  
**PS c XlX j hPjX T PhTP**

m c U A8d f d  
 j vx - B7A d m 5B9AG B9BA  
 d x- l w - 97k xw R x i xz y  
 jw w j- w h- - y 4A89F A8A9

a.zx x x o fl	978D	978E	978F	9797	9798
/80	/90	/:0	/;0	/<0	/=0
a-sy -	87	87	87	87	87
Ksv—	B	B	B	B	B
d-tst-sy ≤	>	>	>	>	>
U fl	=	=	=	=	=
d -tst-sy ≤	=	=	=	=	=
as-sv-s ≤	99	99	99	99	99
e ±s	B	B	B	B	B
ds v±	<	<	<	<	<
es -s≤V6 fi-	B	B	B	B	B
d-sz -	=	=	=	=	=
T fi-sy	8;	8;	8;	8;	8;
d -sfl	98	98	98	98	98
d -sfl Ks s	89	89	89	89	89
as s t e t-sy	B	B	B	B	B
Ks	8:	8:	8:	8:	8:
d Psv sy	B	B	B	B	B
J-svfl Mw -	8;	8;	8;	8;	8;
Ks f s s	=	=	=	=	=
Vs-sv sfls	97	97	97	97	97
d-s-sy sy	A	A	A	A	A
jx x j... x	98B	98B	98B	98B	98B

Ls s s-svC 8ewfls ±f ≤-awfl ±A s ≤s s fl y s -f ae089lffiuverfl fi x r z fl dv ffi vl fl z  
 d fl tw6d tvC aw s ≤T w s fi Ksvs sa s ds - ±W fl 8esz ≤9798 esjysfi<0ut s -9798 wss sy aw tszs s l s  
 aw s s ≤T w s fi Ksvs sa s ds - ±W fl : esz ≤978B wss sy T v wvs ≤V6 fl s h fi sz T w s ds - ±esz ≤  
 978B6Mzvd r z z x fl cvx ffi z fl Y fi sv 7386872Pvs r ; 86872r r v z z fl s w j z v d r z z x fl cvx ffi z fl  
 Y fi sv 9 s 867C s fl M a u r r fl u Y r fi v s v vx z fl r fi v v fi s w r r M s i fi z fl

**m**  
**jwX - B7AB**

**c l d m U**  
**f d c a m**  
**d m m 5B9BA**  
**d x- bw z e - R- yw-X -zx i xz y**  
**w z j - bw z h jw w j- w h- - y 4A8A9**

a.zx x x o fl	Vx c l n	Vx U x Ox x V n	Vx fx x q n	Y x p fi
/80	/90	/:0	/;0	/-0
a-sy -	: <8	9;	>>	: CD9
Ksv—	<97A	8;	<<	B 9DD
d+sts y ≤	8 97<	;	:7	8 9CF
U fl	8 <<	A	8;	8 BDF
d +sts y ≤	;; <	4	9	: AD
as ≤s ≤	89 87:	:88	97=	89 C97
e ±±	9 ⇒	88;	<7	9 E9A
ds v ±	;; >	;7	; >	: B: A
es -s ≤V6 fi-	8 ⇒	8=	99	8 CFE
d-sz -	8: B	;	87	8B:
T fi y	; A: =	87	::	A EE7
d ±fl	9 A<<	9	;7	9 EFD
d ±fl Ks s	8 A>A	4	:7	8 F7E
as s ± e t-y	9AB	8	8=	:7C
Ks	97<B	::	;=	9 8AE
d Psv y	: <B:	;	8A	: C8B
J ±sfl Mw -	8; >	4	98	8 AFD
Ks f s s	⇒7	4	B	CDf
V s ± sfl s	8 >BA	<	: =	8 E: F
d-s ± y	8 AB;	=	8B	8 F8F
<b>jx x j... x</b>	<b>B: 9A:</b>	<b>C: C</b>	<b>DE9</b>	<b>BA CC8</b>

d flt wéd wC Ksvs≤aw s±s±s≤V6 -sflst s wses s≤ ffevys±6/r ±zlr ffr fl u Kxvfl ±ver rfl tzevflxy cvxvfl

**B7B UVp Rg i Vkp RdæRg kRdsRmURVkrA  
hTVæ dPb We ki Te UhTf hTi Tdj Pj X Ti**

**m** **B7A** **U i m i n f c 5**  
**jvx -** **d d d m m**  
**B9AI**  
**d x- f- w- l - -V- -wT-y x i-**  
**w z i xz y jw w j- w h- - y 4A89H**

a.zx x x o fl	Y... a..x 6	bx 4x i fi	f..... x b fi	Y x p fi
/80	/90	/:0	/:0	
a→s y -	>> B	>>A>	<b>8B B: C</b>	
Ksv—	A 9A9	A 8AB	<b>8C AD8</b>	
d†sts y ≤	=7; >	=9: 7	<b>89 9DD</b>	
U fl	: 997	: : 79	<b>C B99</b>	
d †sts y ≤	8 7<	8 78>	<b>9 7DA</b>	
as≤s≤	8<8; =	8<8AB	<b>: 7 : : B</b>	
e ±s	; < =	; =AA	<b>F 99A</b>	
ds v±	=>7	=A8=	<b>8: BDC</b>	
es ≤V6 fi	<B=	<B: 8	<b>88 EFA</b>	
d-sz -	8 A8>	8 A; 8	<b>: CBE</b>	
T fs y	=: <	=: >	<b>89 EAB</b>	
d †sfl	<8-9	<: 8<	<b>87 ADD</b>	
d †sfl Ks s	<: >>	<< B	<b>87 F8C</b>	
as s † e t y	8 B>	9 7A=	<b>A 7C7</b>	
Ks	<>>	<-98	<b>88 AFA</b>	
d Psv y	; ; A8	; < B	<b>F 7: 7</b>	
J sfl Mw -	<: <	<: -9	<b>87 D: D</b>	
Ks f s s	8 < <	8 =>	<b>: 979</b>	
V s y sfl s	=9;	=<-9	<b>8: 8EC</b>	
d-s y y	<: 8=	<9;;	<b>87 BC7</b>	
<b>jx x j... x</b>	<b>87E BCF</b>	<b>87F B7B</b>	<b>98E 7DA</b>	

d fl t w6d wC T fl —awf fzs≤f fl fl Mwsw es s≤ fievyszcvcxzsl r fivfl r fivfl zsl M6i fiz zsl swer r fl fievflxy

$\frac{m}{jw} - B7B$

i d l l i i a i n  
 d m m f i i  
 d d m m 5B9AI  
 d x- f ywfw /lwz/ -h- -V- -w  
 T-y x f ywfw w z i xz y jw w  
 j- w h- - y 4A89H

a.zx xx ofl	fx x a.yx x Ox x	fx x f d filfi fx x U..x x W- ...xhx x	fx x R... x W- ...x f... x x	fx x U x ax x
/80	/90	/:0	/:0	/:0
a<=y -	A9	=7=	8;7=	97A9
Ksv—	87;	9>A	888:	9;7>
d+sts≤	<B	8BB>	8:87	87B<
U fl	=	<9B	=9	BB>
d +sts≤	B	89;	>A	89:
as≤s≤	<A:	979<	97:.	9×<
e ±±	≤	A8<	=A7	8>8
ds v±	8; =	=98	>:	<8B
es ≤Wb fi-	;89	8B9:	8898	98=>
d-sz -	9=	←	:7>	9;9
T fis≤	8>	9: =	8<<A	>98
d ±fl	<9	997	8: =B	9A8
d ±fl Ks s	978	::9	:>B	8< =
as s ± e t≤	:A	=	;8:	9B>
Ks	8=	;BB	>	8= <
d Psv ≤	99	898	887	::A
J ≤sfl Mw -	=A	9B=	:7;	89:9
Ks f s s	88	8;	8;9	;9<
V s≤ sfls	A>	8;×	8<:	8;8
d-s≤ ≤	;B	9B8	=AB	997
<b>jx x j... x</b>	<b>99BD</b>	<b>89 BCA</b>	<b>8C CBC</b>	<b>8F B7A</b>

Vn" w@n" anor yM- " ff' ffr q anoy 888

a.zx x x o fl	fx x dx -...	fx x f U..x x f...yx x W- ...x	θ fi l fi	fx x 0...x x	fx x a.x- x i..x ..x
/80	/-0	/>0	/A0	/80	
a-≤y -	; A; A	=	;;	9; 9	
Ksv—	: B79	=	;7	<9<	
d+sts y ≤	: :7:		88	=8	
U fl	978=	;	9<	8; =	
d +sts y ≤	<>	8>	;	:	
as≤ys≤	<9:	8;	>A	8<99	
e ±±	97⇒	:	88	>A	
ds v±	9AB7	>	:7	>99	
es -≤W6 fi-	>97	;	8<8	99	
d-sz -	A;:	8	B	:	
T fi y	: B7>	>	:A	9=	
d ±fl	: ⇒77	9	8<	8>8	
d ±fl Ks s	9BB7	9	98	>B	
as s ± e t y	97<	4	9	8	
Ks	>⇒⇒	:	9	:<	
d Psv y	: 7>	A;	>	A	
J ±sfl Mw -	; ;>	9:	9=	9;	
Ks f s s	8>99	8	=	8	
V s y sfl s	: 9>	8<	A	9<	
d-s y	<.7;	<<	B	>	
<b>jx x j... x</b>	<b>CAE: A</b>	<b>:F:</b>	<b>B: D</b>	<b>AAAD</b>	

Vn" w@n" anor yM-" ff' ff' q anoy 888

a.zx x x o fl	f...x x W- ...x	fx x f f...yx x	đ fi fi fx x i -x x W- ...x	fx x N x x dx x
/80	/870	/880	/890	/8: 0
a≤s> -	>	::>	>	9B<
Ksv—	87B	<;	8=	8B>7
d+sts> ≤	97	<B7	:	879
U fl	9A	899	B	>
d +sts> ≤	88	:	8	8=
as>s≤	>B7	8 <9A	8: <	8 >9=
e ±B	87: =	8>A	::	A=
ds v ±	B7:	: B<	88A	: A<
es -s≤Vb fi	89>7	8A	8B;	98
d-sz -	97B	: 8	8A	:
T fb>	⇒8	87<	<>7	8=
d ±fl	<8A	: B8	8<>	8<<
d ±fl Ks s	998	8; =	9: ;	B<
as s t e t>	97B	8;	8>A	4
Ks	B9	<	⇒8	: 7
d Psv >	A7	9	<	8:
J>sfll Mw -	98<	87	: <<	B9
Ks f s s	BA	8	A	:
V s> sfl s	8 <⇒	B	<	9B
d-s> >	BB>	88	A<	9A
<b>jx x j... x</b>	<b>F 7BD</b>	<b>A BA7</b>	<b>99F:</b>	<b>B8: F</b>

Vn" w@n" anor yM- " ff' ff' q anoy 888

a.zx x x o fl	fx x Vx d x hx x	fx x R... x	fx x f 0 x 0 x	fi / fi	fx x a.x- x -x f...x x W- ...x
/80	/8; 0	/8<0	/8=0		/8>0
a→s	8<	B<	A		8;
Ksv—	>	B7:	A		97
d±sts	<	9B;	B		88
U fl	9	8B7	;		;
d ±sts	;	8A	4		8
as≤s	89>	9:→	8 9=A		A9
e ±s	9:	: 8B	8:;7		9
ds v±	88>	⇒	88>		89
es ≤Vb fi	⇒	⇒<	<		899
d-sz -	88	<7;	8		>
T fs	8A9	8 998	<		: A
d ±fl	88=	8 7A<	4		: <
d ±fl Ks s	; A	◇>	8		89B
as s t e t	8A	:::	4		8
Ks	879	8B:	9		8-B
d Psv	9>B	B9A	9		;;
J ±sfl Mw -	<<	<B:	=		88;
Ks f s s	98>	<	4		4
V s ± sfl s	: 7A	8<	=		8 988
d-s ±	; >	8⇒	8:		8<
<b>j x j ... x</b>	<b>DA9E</b>	<b>89 BAB</b>	<b>9 DFB</b>		<b>9 8C:</b>

d fl twd uc T fl —awf fzs≤f fl fl Mw sz es s≤ fwey sz c vx z fl r f v r r f f r f z fl M fi f iz z fl s ver r fl f z v l r y



m  
jwx - B7B7

i l l c d R U  
i k U 1Ui kU2a i  
n f U i i  
d m m 5B9AI  
d x- l w z l - w z h- w W -  
h- - - w - i-w Qw-z V- - w T-y h- x  
l P -ww z f yw fw jw w j- w h- - y 4  
A89H

fx x lfi	i xxix rfi r	Y x a ofi
/80	/90	/:0
<b>jx x j... x W</b>	<b>:EFED</b>	<b>F</b>
as s-Tvt s s ± s ≤ K s s	>A<	4
as s-Pws s ≤ Rv s w s cs s	:;=8	8
as s-Mw l ± s -Rv s w s aw...s s s s	:;=<	8
as s-P fi s s ≤ T s s	:;;<	8
as s-V6 v w l	87 <	9
as s-Pws s ≤ aw ts z s ≤ Rv s w s	9;	4
as s-Kw ± s	88B	4
as s-Tv s v -f s ≤ d w s z w s	<b>9:99</b>	<b>8</b>
aw s s ≤ Rv s w s	9>8B	8
as s-aw s s ≤ aw l t s s s	9878	4
as s-d f w s -s Rv s w s	9A>	4
as s-J f l s s ≤ V6 -s f i	98B>	4
as s-Qs -W s ≤ cs ± s	8:9;	4
as s-Mw l ± s	:;:	8
as s-K fi s ≤ K -s s s	9>9<	8
as s-Tv s v -f s ≤ v s ≤ aw s s ≤ Rv s w s	B=	4
<b>jx x j... x W</b>	<b>:EE8:</b>	<b>E</b>
as s-Tvt s s ± s ≤ K s s	:8>	4
as s-Pws s ≤ Rv s w s cs s	:<;	8
as s-Mw l ± s -Rv s w s aw...s s s s	<8BB	8
as s-P fi s s ≤ T s s	=>;	8
as s-V6 v w l	8;=8=	:
as s-Pws s ≤ aw ts z s ≤ Rv s w s	:>	4

Vn" w@n" anor yM- " ff' ff' q anoy 888

fx x l fi	i x xix r fi r	Y x a o fi
/80	/90	/: 0
as s-Kw±s s	89;	4
as s-Twv fi ≤dwsz ws	B>>	4
aw s s≤Rev ≤w-s	9;9	4
as s-aw s s≤awfi tsy ≤≤	8=B=	4
as s-d fivs -s Rev ≤w-s	: =	4
as s-Jfi s≤ V6 -≤fi	9; <	8
as s-Qs -W s≤cs±s	::	4
as s-Mwfi ±s	9>9	8
as s-K fi ≤K≤s sy	9B	4
as s-Twv fi ≤vs≤aw s s≤Rev ≤w-s	<	4
<b>jx x j... x WW</b>	<b>AE 7BA</b>	<b>F</b>
as s-Twts sy ±s≤Ks sy s	9<	4
as s-Pws±s≤Rev ≤w-s cs s	9=B=	4
as s-Mwfi ±s -Rev ≤w-s aw...s sy≤	9A=9	8
as s-P fi sy≤Ts s	; 889	8
as s-V6 vwfi	9<; ≠	<
as s-Pws±s≤aw tszs≤Rev ≤w-s	: 8=	4
as s-Kw±s s	<A	4
as s-Twv fi ≤dwsz ws	8=A	4
aw s s≤Rev ≤w-s	: 7<A	8
as s-aw s s≤awfi tsy ≤≤	: A	4
as s-d fivs -s Rev ≤w-s	=8B	4
as s-Jfi s≤ V6 -≤fi	8B<	4
as s-Qs -W s≤cs±s	; ;97	8

Vn" w@n" anor yM- " ff' ff q anoy 849

fx x l fi	i x x i x r f i r	Y x a o fi
/80	/90	/: 0
as s-Mwfl ±s	97A<	4
as s-K fi≤K≤s s y	9B	4
as s-Tvsv-fb≤vs≤aw s s≤REV ≤w-5	8=A<	4
<b>jx x j... x W</b>	<b>A8 9: E</b>	<b>F</b>
as s-Tvts s y ±s≤Ks s y s	B79	4
as s-Pws ±s≤REV ≤w-5 cs s	9A>	8
as s-Mwfl ±s -REV ≤w-5 aw...s s y s ≤	<8: B	8
as s-P fi s y s ≤Ts s	<9: ;	8
as s-Vb vwfl	8; 89<	;
as s-Pws ±s≤aw tszs≤REV ≤w-5	8=	4
as s-Kw ±s s	9: =	4
as s-Tvsv-fb≤dwsz ws	BA7	4
aw s s≤REV ≤w-5	: 79A	8
as s-aw s s≤awfl ts s y s ≤s	>7<	4
as s-d fiv s -s REV ≤w-5	8: <8	4
as s-J fl s s Vb -s fi	9B7	4
as s-Qs -W s ≤cs ±s	8=8	4
as s-Mwfl ±s	; : <<	8
as s-K fi≤K≤s s y	89	4
as s-Tvsv-fb≤vs≤aw s s≤REV ≤w-5	:: 9	4
<b>Y x q fi</b>	<b>8CD7F9</b>	<b>: B</b>

d fl twbd uw T fl -awfl fzs s fl fl Mwsws es s≤ fwevysz6vzxzfl r f q vlv r f f f f f z fl M fl fiz z fl sver r fl f f v l x r y

$\frac{m}{jwx} - BBD$

**c R U i k U**  
**U i k U 2 a i n f i i**  
**U i d m m 5B9AI**  
**d x- h- w W - h- - - w - / c - x-**  
**Qw -z V- - w T-y h- x f ywfw w z**  
**l P -w jw w j- w h- - y 4A89H**

$f x x f$ $l f i f i$	$R x \dots x f \dots x \&$	$U f i$	$Y x$ $p f i$
	W	W	W
/80	/90	/:0	/:0
as s-Twt s y ± s ≤ K s y s	4	4	4
as s-Pws ± s ≤ R s y s w s c s s	8	8	4
as s-Mw l ± s -R s y s w s aw...s y s ≤	8	8	8
as s-P f i s y s ≤ T s s	8	8	8
as s-W b w w l	9	:	<
as s-Pws ± s a w t s z s ≤ R s y s w s	4	4	4
as s-K w ± s	4	4	4
as s-T w v f i s ≤ d w s z w s	8	4	4
aw s s ≤ R s y s w s	8	4	8
as s-a w s s ≤ a w l t s y s ≤	4	4	4
as s-d f w s -s R s y s w s	4	4	4
as s-J l s s W b -s f i	4	8	4
as s-Q s -W s ≤ c s ± s	4	4	8
as s-Mw l ± s	8	8	4
as s-K f i s ≤ K s y s	8	4	4
as s-T w v f i s v s a w s s ≤ R s y s w s	4	4	4
<b>Y x &amp; f i</b>	<b>F</b>	<b>E</b>	<b>F</b>

d fl tw b d u c T fl -aw l f i z s ≤ f l fl M w s e s s ≤ f r e w s z c v x z f l r f i v l r f i f i z s l M s f i z z s l s w e r r f l f f e v l x y

m  
jwx - BZÆ

c R U i k U  
 1Ui kU2a i n f i i  
 c d d m m 5B9AI  
 d x- h- w W - h- - - w - / c - x-  
 Qw-z V- - w T-y h- x f ywfw w z i-  
 jw w j- w h- - y 4A89H

f x x f l f l fi	Y... a..x ω bx 4x i fi	f.... x b fi	Y x p fi
/80	/90	/:0	/:0
as s-Tw s±s±s≤Ks±s	4	4	4
as s-Pws±s≤R±v ±w-s cs s	:	4	:
as s-Mw l ±s -R±v ±w-s aw. s±s±s	9	9	A
as s-P fi±s±Ts s	:	8	A
as s-W vwl	88	:	8A
as s-Pws±s±aw ts±s≤R±v ±w-s	4	4	4
as s-Kw±s s	4	4	4
as s-Tw v-f±s±dws±s ws	8	4	8
aw s s≤R±v ±w-s	:	4	:
as s-aw s s±aw l ts±s±s	4	4	4
as s-d f±s -s R±v ±w-s	4	4	4
as s-J l s±s W±s -s fi	8	4	8
as s-Qs -W s±cs±s	8	4	8
as s-Mw l ±s	:	4	:
as s-K f±s±K±s±s	8	4	8
as s-Tw v-f±s±M±s±aw s s≤R±v ±w-s	4	4	4
<b>Y x φ fi</b>	<b>9F</b>	<b>C</b>	<b>:B</b>

d fl tw d wC T fl -aw l f±s±f l fl Mw s±s s± f±e±y±s±c±v±z±l r±q±v l r±f±f±i z±l M±f±i±z z±l ±w±v r±f± f±e±v l r±y

$\frac{m}{jwx -}$  BZBZ

c R U i k U  
 1Ui kU2a i n f U  
 i Si i 5 c d d  
 m m 5B9Al  
 d x- h- w W - h- - - w - / c - x-  
 Qw -z V- - w T -y h- x l P -wAf yw  
 fw 4w z i- jw w j- w h- - y 4A89H

$f_x x$ /fi	$Y... a..x$ bx 4x i fi	$\omega$ f..... x b fi	$Y x$ p fi
/80	/90	/:0	/:0
<b>jx x j... x W</b>	<b>E</b>	<b>8</b>	<b>F</b>
as s-Twt s y ± s ≤ K s y s	4	4	4
as s-Pws ± s ≤ P w s ≤ w s cs s	8	4	8
as s-Mw l ± s - P w s ≤ w s aw . s s y s ≤	8	4	8
as s-P fi s y s ≤ T s s	8	4	8
as s-V6 v w l	8	8	9
as s-Pws ± s aw ts z s ≤ P w s ≤ w s	4	4	4
as s-Kw ± s s	4	4	4
as s-Tw v f s ≤ d w s z w s	8	4	8
aw s s ≤ P w s ≤ w s	8	4	8
as s-aw s s ≤ aw l t s y s ≤ s	4	4	4
as s-d f w s - s P w s ≤ w s	4	4	4
as s-l f l s s V6 - s f i	4	4	4
as s-Qs -W s ≤ cs ± s	4	4	4
as s-Mw l ± s	8	4	8
as s-K fi s ≤ K s y s	8	4	8
as s-Tw v f s ≤ v s ≤ aw s s ≤ P w s ≤ w s	4	4	4
<b>jx x j... x W</b>	<b>D</b>	<b>8</b>	<b>E</b>
as s-Twt s y ± s ≤ K s y s	4	4	4
as s-Pws ± s ≤ P w s ≤ w s cs s	8	4	8
as s-Mw l ± s - P w s ≤ w s aw . s s y s ≤	4	8	8
as s-P fi s y s ≤ T s s	8	4	8
as s-V6 v w l	:	4	:

Vn" w@n" anor yM-" ff' ff' q anoy 884

$f_x \ x$ $l \ fi$	$Y... a..x \ 60$ $bx \ 4x$ $i \ fi$	$f..... x$ $b \ fi$	$Y \ x$ $p \ fi$
/80	/90	/:0	/:0
as s-Pws±s≤aw tszs≤Rv ≤w-s	4	4	4
as s-Kw±s s	4	4	4
as s-Twv-fs≤dwsz ws	4	4	4
aw s s≤Rv ≤w-s	4	4	4
as s-aw s s≤awf tsy ≤s	4	4	4
as s-d fvs -s Rv ≤w-s	4	4	4
as s-Jf s≤ V6 -sfi	8	4	8
as s-Qs -W s≤cs±s	4	4	4
as s-Mw ±s	8	4	8
as s-K fs≤K≤sy	4	4	4
as s-Twv-fs≤vs≤aw s s≤Rv ≤w-s	4	4	4
<b>jx x j... x WW</b>	<b>D</b>	<b>9</b>	<b>F</b>
as s-Twtsy±s≤Ksy s	4	4	4
as s-Pws±s≤Rv ≤w-s cs s	4	4	4
as s-Mw ±s -Rv ≤w-s aw...s≤s	8	4	8
as s-P fisy≤Ts s	4	8	8
as s-V6 vwfl	;	8	B
as s-Pws±s≤aw tszs≤Rv ≤w-s	4	4	4
as s-Kw±s s	4	4	4
as s-Twv-fs≤dwsz ws	4	4	4
aw s s≤Rv ≤w-s	8	4	8
as s-aw s s≤awf tsy ≤s	4	4	4
as s-d fvs -s Rv ≤w-s	4	4	4
as s-Jf s≤ V6 -sfi	4	4	4
as s-Qs -W s≤cs±s	8	4	8
as s-Mw ±s	4	4	4

Vn" w@" anor yM- " ff' ff q anoy 884

$f x x$ $l f i$	$Y... a..x$ $\omega$	$Y x$ $p f i$
/80	/90	/:0
as s-K fi≤K≤s s y	4	4
as s-Twsv fi≤vs≤aw s s≤Rv s w-s	4	4
<b>j x x j... x W</b>	<b>D</b>	<b>9</b>
as s-Twts s y±s≤Ks s y s	4	4
as s-Pws±s≤Rv s w-s cs s	8	4
as s-Mwfi ±s -Rv s w-s aw..s s y s	4	8
as s-P fi s y s ≤Ts s	8	4
as s-Vb vwfi	:	8
as s-Pws±s≤aw tszs≤Rv s w-s	4	4
as s-Kw±s s	4	4
as s-Twsv fi≤dwsz ws	4	4
aw s s≤Rv s w-s	8	4
as s-aw s s≤awfi ts s y s	4	4
as s-d fvs -s Rv s w-s	4	4
as s-J fi s s Vb -s fi	4	4
as s-Qs -W s≤cs±s	4	4
as s-Mwfi ±s	8	4
as s-K fi≤K≤s s y	4	4
as s-Twsv fi≤vs≤aw s s≤Rv s w-s	4	4
<b>Y x p f i</b>	<b>9F</b>	<b>C</b>
		<b>: B</b>

d fl t w d u c T fl -awfi fzs≤f fl fl Mwsz es s≤ fweysz c v x z s r r i q v l v r f i o f i z s l M s i f i z z s l s v r r f l f z e v l x r y



m  
jwx - B7B7G

c R U i k U  
 1Ui kU2d m m f i i  
 c d 5B9BA  
 d x- h- w W - h- - - w - / c - x- x  
 f ywfw w zi- jw w j- w h- - y 4A8A9

fx x f l f l fi	Y... a..x 6o bx 4x i fi	f.... x b fi	Y x p fi
/80	/90	/:0	/:0
as s-Twts±s≤Ks±s	4	4	4
as s-Pws±s≤Rsv ±w-s cs s	:	4	:
as s-Mwfi ±s -Rsv ±w-s aw..s±s±s	9	9	A
as s-P fi±s≤Ts s	:	8	A
as s-W6 vwfi	88	:	8A
as s-Pws±s±aw tszs±Rsv ±w-s	4	4	4
as s-Kw±s s	4	4	4
as s-Twv-f±s±dwsz ws	8	4	8
aw s s±Rsv ±w-s	:	4	:
as s-aw s s±awfi ts±s±s	4	4	4
as s-d fws -s Rsv ±w-s	4	4	4
as s-Jfls±s W6 -±fi	8	4	8
as s-Qs -W s±cs±s	8	4	8
as s-Mwfi ±s	:	4	:
as s-K fi±s±K±s±s±s	8	4	8
as s-Twv-f±s±M6±aw s s±Rsv ±w-s	4	4	4
<b>Y x p fi</b>	<b>9F</b>	<b>C</b>	<b>:B</b>

d fltw6d wC dwt±ws ± Mw s±aw s±f±s±cs±s Mwswz Tst s wses s± ffevys±z6eyvdt v r r ± ±wv±z±f r f±s± v±v  
 cv v vfi r zv ±ver rfi ffevflxry cvxvftt

$\frac{m}{jwx -}$  B7B7H

c R U i k U  
 1Ui kU2f W c d d  
 m m 5B9BA  
 d x- h- w W - h- - - w - / c - x- x  
 Uwy w z i- jw w j- w h- - y 4A8A9

T x b fi	Y... a..x 60 bx 4x i fi	f..... x b fi	Y x p fi
/80	/90	/:0	/:0
0 s ± -V6 vvf1	88	:	8A
0 s ± -P fits	:	8	A
0 s ± -aMfaw.. s.sys ≤4afi	:	9	B
0 s ± -Pw ≤v s	:	4	:
0 s ± -Mfi ±s	:	4	:
0 s ± -aw ≤v	:	4	:
0 s ± -K ≤s s y J fl s s dwsz ws6 Pst ≤ys ≤	:	4	:
<b>Y x 6p fi</b>	<b>9F</b>	<b>C</b>	<b>:B</b>

d fl tw6d wC dvtws - Mw s ≤aw s ±fs ≤cs ±s Mw sz Tst s wses s ≤ freveysz 6eyv dt v r r s wcvz s fl r f m ≤ v s v  
 cv v vfl r z v sver r fl ffevflxry cv xv flt

m  
jwx - B7B7

c d U i k U  
 1Ui kU2f c d d m  
 m 5B9AG B9BA  
 d x- S-y -- X -z x h- w W -  
 h- - - w - x j - S-y -- jw w j- w  
 h- - y 4A89F 5A8A9

Y... a... x p Y	978D	978E	978F	9797	9798
/80	/90	/:0	/:0	/<0	/=0
aws s≤M6wsz6Vstr ffi ffi	A	88	>	=	<
Tw s≤MacM6ar ffi fi vfi Nvt vv	A	8<	98	8B	<
aw≤s ss≤6d r vfi vfi	4	4	4	4	4
aw≤s ss≤aws s 6Z zizfi	4	4	4	4	4
cw fi 6cv sfi zfi	4	4	4	4	4
Tw fl fs≤aws s 6Z zizfi cv fi v	4	4	4	4	4
Tw s≤a-fl s≤MacM6 ar ffi fi vfi Myrz vs ffi Nvt vv	4	4	4	4	4
Tw s≤Ksvs≤V s s sz6 Nvt ffr v r zfi Kxvft Nvt vv	4	4	4	4	4
V vfi s≤v fl 6Wvfi s r flu fi	4	4	4	4	4
aws s Ksvs≤l s yys s≤6L uxv Kxvft Z zizfi	4	4	4	4	4
Tw s≤Kw s fl s MacMvs≤ K s 6ar ffi fi vfi r flu cvxvfi Tzfi Nvt vv	89	B	89	B	8=
aws s≤MacM6ar ffi fi vfi c ffi	4	8	4	4	4
Y x 6p fi	9E	:C	A7	:A	9C

d fl t w6d uC dwe±ws - Mw s≤aw s±fs≤cs±s M6wsz Tst s wses s≤frewesysz6eyv dvt v r r s≤cvxzfi r ffr≤ v s w  
 cv v vfi r z v s v r r fi ffevixry cvxvft



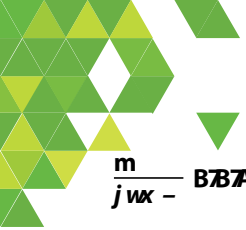
m  
jwx - B7A9

c d U i k U  
 1Ui kU2d m m f c  
 d 5B9AG B9BA  
 d x- Py - h- w W - h- - - w -  
 x j - Py j w w j- w h- - y 4A89F 5A8A9

Y... a... x x p U	978D	978E	978F	9797	9798
/80	/90	/:0	/;0	/<0	/=0
d-vs s y R fl w s6d vtz fflv z sfl	>	:	:	;	9
d-vs s y as - s6affflr dv z sfl	98	97	8>	8>	8:
d-vs s y as - s Tz 6ar z ffl dv z sfl	4	4	4	4	4
cs s Ksvs s J s y s s 6L uxv M sfi fi z vv Wvv zix	=	8:	8A	8:	87
cs s as s s Tz 6d vtz ffl M sfi fi z vv Wvv zix	4	4	4	9	4
cs s Tw s T fl - M w s y a w s s 6Rvr zix M sfi fi z z sfl Wvv zix	A	:	9	9	=
cs s c s T fl - 6c s zlv Wvv zix M sfi fi z z sfl	9	:	9	8	4
cs s Ksvs s V s s sz6 Nv f s v r z sfl M sfi fi z vv Wvv zix	9A	99	99	8:	8:
cs s a fl s s W r uv Wvv zix	4	4	4	4	4
cs s Ksvs s U w y - f s - 6W x z ffl z sfl M sfi fi z vv Wvv zix	<	:	;	9	:
T s s y s s Tw s T fl - 6 M sfi fi z z sfl h s f f f l x g z z	4	4	4	4	4
cs s Ksvs s Tw s fl s s R s fl s M sfi z vv Wvv zix	4	4	4	B	4
Y x q fi	DD	CD	CE	C:	AD

d fl tw d w c d v e w s s M w s s a w s s f s s c s s s M w s z T s t s w e s s s f r e v e s y s z 6 e y v d v t v r z r s i c v x z s f r f l s s v s v c v v f l r z v s e r r f l f f e f l x r y c v x v f l t





m  
jvx - B7A

c i i f i i  
c d d m m 5B9BA  
d x- f ywfw e yw x f ywfw w z i-  
jw w j- w h- - y 4A8A9

f x x f l f l fi	Y... a..x ω bx 4x i fi	f... x b fi	Y x p fi
/80	/90	/:0	/;0
as s-Twts±s≤Ks±s			
as s-Pws±s≤R±s ±w-s cs s			
as s-Mwfi ±s -R±s ±w-s aw. .s±s±s			
as s-P fi±s≤Ts s			
as s-V6 vwf			
as s-Pws±s≤aw t±s±s≤R±s ±w-s			
as s-Kw±s s			
as s-Twv fi±s±dwsz ws			
aw s s≤R±s ±w-s			
as s-aw s s±awfi ts±s±s			
as s-d f±s -s R±s ±w-s			
as s-Jf l s±s V6 -±sfi			
as s-Qs -W s±cs±s			
as s-Mwfi ±s			
as s-K fi±s≤K±s±s			
as s-Twv fi±s±vs±aw s s≤R±s ±w-s			
Y x ω fi			

d fl t w6d uwC T fl --awfi ±s±f fl fl GeyvYr ±fl r f0vflv r f0vfi ±fl Mfi fi z ±fl



**B7C Inf SVk URsR f Rgnl kR  
Wkc Pd hTi e khRTi**

$\frac{m}{jvx -}$  **B7A**      c      i      g      l      f      c      c  
d      d      m      m      5U      B9B9

U      B9BA

d x- R i- w x eyy w w zi- jw w  
j- w h- - y 4S -y- x- A8A8 w z S -y- x- A8A9

$\frac{Yyx x}{k fi}$	$\frac{bx 4x}{i fi}$	$\frac{f \dots x}{b fi}$	$\frac{Y x}{p fi}$
/80	/90	/: 0	/A0
Ssts s ≤ a fl -s ≤ e -y -a s s fl s T fl ≤ 0 vt z v	9 <	;	9B
J v fl ≤ s 6 k u f i z l z r ≤	88B	< 8	8 >
ave s y s s 6 d v z ≤	9B7	99 >	< 8 >
Ssts s ≤ 0 sy -s f i p M r z l P f i t z s l r f i u ≤ z z s l v s e v r t y v	←	8 < 9 <	97B8
Ssts s ≤ 0 sy -s f i v w - M r z l P f i t z s l r f i u ≤ z z s l v s W w u z r f i p z r f i	B8	< 8;	≠ <
Ssts s ≤ 0 sy -s f i e v t s - M r z l P f i t z s l r f i u ≤ z z s l v s e v t y f l z r f i p z r f i	; 8	9:	⇒
Ssts s ≤ 0 sy -s f i f l f l 6 a w f s ± s s Q v f l v r f i p f i t z s l r f i u ≤ z z s l	> 7;	B: B	8 ⇒ :
<b>Y x p fi</b>	<b>8 E: C</b>	<b>: 9 E:</b>	<b>B 88F</b>

Vn" w@n" anor y5M- " ff' ffr q anoy 84947

Yxyx x k fi	bx 4x i fi	f..... x b fi	Y x p fi
/80	/90	/: 0	/A0
Ssts s≤a-fl -s≤e-sy-a s sfls T flz≤ 0 vt zv	9<	<	:7
Jvfl ≤- s Kufi zil r ≤	88=	◇	8>
awesys s bd v z ≤	9A>	99B	<8=
Ssts s≤0 sy -sfp M rzi P fit zflr fñ≤z zfl vs evr tyv	<9:	8; :<	8B<A
Ssts s≤0 sy -sflv w - M rzi P fit zflr fñ≤z zfl vs Wvuzr fñzrñ	B9	⇒A	×7
Ssts s≤0 sy -sfiwts- M rzi P fit zflr fñ≤z zfl vs evtyflzr fñzrñ	:9	97	<9
Ssts s≤0 sy -sfl fl fl Gaws ±s ≤ Qvflv rññ fit zflr fñ≤z zfl	⇒>	>9>	8: ⇒
<b>Y x p fi</b>	<b>8 D89</b>	<b>: 8: 8</b>	<b>A EA:</b>

d fl twd≤ tvC Ksvs≤T w ys s-s≤W wys s /KTWQSYr zflr fñz zflv zv Kxvfl

$\frac{m}{jwx} - B7CB$

c i g l f m i  
 c d d m m 5  
 U B9B9 U B9BA  
 d x- R i- w x Tz yw w b- - w z i-  
 j w w j- w h- - y 4S -y- x- A8A8 w z S -y- x-  
 A8A9

$\frac{j}{a} \frac{x}{fi} \frac{f...}{fi} \frac{-}{fi} \frac{-}{fi} \frac{x}{h}$	$\frac{bx}{i} \frac{4x}{fi}$	$\frac{f.....}{b} \frac{x}{fi}$	$\frac{Y}{p} \frac{x}{fi}$
/80	/90	/: 0	/A0
$\frac{dwt}{a} \frac{fiz}{zfr} \frac{Ms}{dty} \frac{s}{sffi} /dMD$	8<	8	8=
$\frac{dwt}{T} \frac{fiz}{fiz} \frac{V}{Rzxy} \frac{wesvysyz}{dty} \frac{aw}{sffi} \frac{sfl}{s} /dV a0$	:>	9	: B
$\frac{dwt}{dvfiz} \frac{fiz}{Rzxy} \frac{V}{dty} \frac{wesvysyz}{sffi} \frac{J}{s} /dV J0$	; <	=87	87=
$\frac{M}{Nz} \frac{fi}{ffir} \frac{s}{SSKffr} \frac{R}{S} \pm R$	:	: B	; 9
$\frac{M}{Nz} \frac{fi}{ffir} \frac{s}{SSKffr} \frac{R}{S} \pm R$	>A	8=9	9; 7
$\frac{M}{Nz} \frac{fi}{ffir} \frac{s}{SSSKffr} \frac{R}{SS} \pm s R$	89=	>98	A; >
$\frac{M}{Nz} \frac{fi}{ffir} \frac{s}{SjSKffr} \frac{R}{Sj} \pm s R$	9;	B	::
$\frac{d86ds}{f} \frac{s}{fluv} \frac{s}{Qru} \frac{r}{rv} \frac{s}{vSLrtyvff}$	BBB	8=A>	9=A=
$\frac{d96as}{Qru} \frac{us}{rv} \frac{ds}{s}$	BB	<9	8<8
$\frac{d}{a} \frac{GM}{Qru} \frac{\pm}{rv} \frac{6az9M}{s}$	8	4	8
<b>Y x φ fi</b>	<b>8 E: C</b>	<b>: 9 E:</b>	<b>B 88F</b>



Vn" w@n" anor ySM- " ff' ffr q anoy 8498

<p>j x f...- x a fi fi h</p>	<p>bx 4x i fi</p>	<p>9798 f.... x b fi</p>	<p>Y x p fi</p>
/80	/B0	/C0	/D0
<p>dvt: fsz Mb s /dVO a xir dty≤ffi</p>	8;	8	8<
<p>dvt: fsz V weswys sz aw sfl s /dV a0 T flz Rxy dty≤ffi</p>	:7	9	:9
<p>dvt: fsz V weswys sz J s /dV J0 dvflz Rxy dty≤ffi</p>	:B<	;B<	AB7
<p>M- fi fl s Rj ±s R Nz ffr r SSKffr S</p>	9	:7	:9
<p>M- fi fl s Rj ±s RR Nz ffr r SSKffr S</p>	<<	887	8=<
<p>M- fi fl s Rj ±s RR Nz ffr r SSKffr S</p>	897	>7:	A9:
<p>M- fi fl s Rj ±s Rj Nz ffr r SSKffr S</p>	9;	87	::;
<p>d86ds s:s f fluv Qru r vSLrtyvff</p>	B>8	8 >9A	9 =BB
<p>d96as us ds s:s Qru r v</p>	877	<9	8<9
<p>d: 6M ± 6az3M a≤ Qru r v</p>	8	4	8
<p><b>Y x p fi</b></p>	<b>8 D89</b>	<b>: 8: 8</b>	<b>A EA:</b>

d fl t w6ds tvC Ksvs≤Tw wys s-s≤Wwys s /KTW06Yr zsr flz zflv zv Kxvflr

$\frac{m}{jwx} - B7C7$

c i g l f m  
 d c d d m  
 m 5U B9B9 U B9BA  
 d x- R i- w x W- wy w zi- jw w  
 j- w h- - y 4S-y- x- A8A8 w z S-y- x- A8A9

fx x 0J x 0h x		9797		
d fi		bx 4x	f..... x	Y x
/80		i fi	b fi	p fi
U x Wñfi e		9A	4	9A
85R6J /S	V vs06T flz≤ Mñfi ff	4	4	4
95R6K /S	V vs e-sy±s R0Pz Mñfi T flz≤ Mñfi ff	:	4	:
:5R6L /S	06Mñfi ff	B	4	B
;5R6M /S	e-sy±s R0Pz Mñfi Mñfi ff	89	4	89
U x Wñfi ee		:CE	CC:	87:8
<5R6J /awsys	V vs06T flz≤ d v z≤	; >	97	⇒
=5R6K /awsys	V vs e-sy±s R0 Pz Mñfi T flz≤ d v z≤	B9	A9	8>
>5R6L /awsys	06d v z≤	AB	::7	;8B
A5R6M /awsys	e-sy±s R0Pz Mñfi d v z≤	8;7	9:8	:>8
U x Wñfi eee		888F	8 FEC	:87B
B5R6J /aws s V	vs06T flz≤ d v zñ vfluvfl	:77	<;	A;
875R6K /aws s V	vs e-sy±s R0 Pz Mñfi T flz≤ d v zñ vfluvfl	9<	<8<	≠A
885R6L /aws s 06d	v zñ vfluvfl	9;>	::7	⇒
895R6M /aws s e-sy±s	R0Pz Mñfi d v zñ vfluvfl	:8B	<7>	A9=
U x Wñfi er		:9B	C: A	FBF
8:5R6J /awfl t-ss06Kufi zñz	r ≤	98<	;=	-A8
8:5R6K /awfl t-ss e-sy±s	R0Pz Mñfi Kufi zñz r ≤	B8	8=A	9-B
8-5R6L /awfl t-ss f sfl s V	vs06T flz≤ Kufi zñz r ≤	8A	4	8A
8-5R6M /awfl t-ss f sfl s V sv	s06Wzaurfi Kufi zñz r ≤	8	4	8
Y x 0p fi		8 E: C	: 9E:	B88F

Vn" w@n" anor ySM-" ff' ffr q anoy 844

f x x 6J x Gh x		9798	
d fi		bx 4x	f..... x
		i fi	Y x
/80		/90	/A0
<b>U x Wñfi e</b>		<b>9A</b>	<b>9A</b>
85R6J /S V vs06T flz≤ Mñ ff		4	4
95R6K /S V vs e-sy-3s R6Pz Mñ T flz≤ Mñ ff		9	4
:5R6L /S 06Mñ ff		87	4
;5R6M/S e-sy-3s R6Pz Mñ Mñ ff		89	4
<b>U x Wñfi ee</b>		<b>:7:</b>	<b>BAC</b>
<5R6J /awsys V vs06T flz≤ d v z≤		:9	8:
=5R6K /awsys V vs e-sy-3s R0 Pz Mñ T flz≤ d v z≤		◇	;B
>5R6L /awsys 06d v z≤		B=	8=7
A5R6M/awsys e-sy-3s R6Pz Mñ d v z≤		88A	:9;
<b>U x Wñfi eee</b>		<b>87DD</b>	<b>: 7B7</b>
B5R6J /aws s V vs06T flz≤ d v zl vfluvfl		9A:	<>
875R6K /aws s V vs e-sy-3s R0 Pz Mñ T flz≤ d v zl vfluvfl		99<	:::
885R6L /aws s 06d v zl vfluvfl		9-B	;AA
895R6M/aws s e-sy-3s R6Pz Mñ d v zl vfluvfl		:87	<7<
<b>U x Wñfi er</b>		<b>:7E</b>	<b>C89</b>
8:5R6J /awfl t-3s 06Kufi zlz r ≤		8B>	;8>
8;5R6K /awfl t-3s e-sy-3s R6Pz Mñ Kufi zlz r ≤		B<	8B;
8<5R6L /awfl t-3s f sfl s V vs06T flz≤ Kufi zlz r ≤		8<	8
8=5R6M/awfl t-3s f sfl s V sv s06Wzaurñ Kufi zlz r ≤		8	4
<b>Y x 6p fi</b>		<b>8 D89</b>	<b>: 8: 8</b>
			<b>A EA:</b>

d fl t w6d≤ tvC Ksvs≤Tw wys s-s≤Wwys s /KTW06Yr zslr flz zflv zlv Kxvflr

$\frac{m}{jvx -}$  B7C7D

c a f c d i  
 g l 5B9AA B9BA  
 d x- Yz - ix wS y R x i- 4A899 5  
 A8A9

$jx$ $u fi$	$Y... a..x \omega$ $bx 4x$ $i fi$	$f..... x$ $b fi$	$Y x$ $p fi$
/80	/90	/:0	/:0
9787	<	9	D
9788	=	9	E
9789	>	8	E
978:	>	7	D
978;	>	8	E
978<	>	8	E
978=	=	8	D
978>	<	8	C
978A	:	8	A
978B	<	<	87
9798	=	;	87

d fltw6d wC awsvs-fs≤Wwyw-dt fys6dzs≤fir Nz z Ms

**B7D**

**dVnRgYRg i Vf Vklg nRa  
be RPbVeI Thdc Tdj UXdPdRT**

**m**                      **k**                      **i**                      **i**                      **d**                      **m**  
**jvx - B7DA**        **m**                      **f**                      **c**                      **i**                      **1**                      **Z5B9AG6B9BA**  
**Py w h- - - jw w j- w h- - y V - -**  
**x a z h- - - 0 w 14A89F 5A8A9**

Y... f...-x x x G n	978D	978E
/80	/90	:/0
<b>85 f...-x x x N Rx..x /fNR06n fi n</b>	<b>D9 D87 : 7E BF73B:</b>	<b>DC CC7 EE: A873 :</b>
85B as s±Mwswz5cvxzšlr fšlr	8<A8A 897 =>A3B>	8A 78<9: : ; 7: 3<<
85D cw t -Mwswz5cvxzšlr fšlv z šlr	8 =B <8<77737	9 889 88A ; 9<377
85 Qs -fiawesvfi fšs≤Twšs s≤Mwswz s sy M- -sz šs≤ dv r r vu Wr flr xvfi vfi s cvxzšlr flm vrffy	87 =>7 : ; : : = 377	B => ; = : < 9377
85 Uš ≤4š ≤aj M s sy dsz šz yv cvxzšlr fšlv vfi v	;; <9: 9B < B3 =	; =A<A 8A 7: B3>A
<b>95f...-x x x j x `..Gp fi n</b>	<b>8 77F 9F8 E9: 7A737</b>	<b>8 7A8 : CC C9F EE837</b>
95B awsws s s≤e s≤xv awfi w≤sz a s 5Wfi r ffi Q≤v fi vfi erfi w cv vfi v	<b>EA F DDB DA: ECF37</b>	<b>8 77E 97: EBA DCF37</b>
95B8 Ksy-Qs -fias s±šer dyr žlx cv vfi v	8=9: B <AA 7A737	8; < : >8A: < 377
95B9 Ksy-Qs -fik šs≤as s±šd fl tw Mš s J fšfi 5Y šššer dyr žlx cv vfi v5Yr r fšlv ≤ tv	9 7B7 887 A8937	; =>9A>A<377
95B5 Mš≤ J fi šs -f fi fl 5Qvfi v r fšlr fšlr šlr P flu	=99: A<7: 7 77737	=>79><< 77737
95B5 Mš≤ J fi šs -Tz šd vtz fšlr fšlr šlr P flu	87B > ; = B 99>377	9; 8 78A <89 <377
95B5<Mš≤ J fi šs -Tz W ≤0-šd vtz fšlr fšlr šlr P flu Y šlr ay žlr ffi	BB 9B=: >>377	4
95B5<Mš≤ Mwsšz fšlr v P flu	4	897 B=>A: 77737
<b>95B f...-x x x j x `...f..... x f x 4</b> <b>bx x6W fi c p fi n</b>	<b>89: 8BA E8B E7737</b>	<b>4</b>
<b>AK</b>		
95B8 Mš≤ Mwsšz fšlr v P flu	89: 8< A8<A7737	4
95B9 Mš≤ awš w s±šK- fi vfi P flu	4	4
95 awsws s s≤e s≤xv awfi w≤sz Mwswz 4Uš ≤šs 5 cvxzšlr fšlv vfi vfi erfi w cv vfi v 3Z yv	: =: =8 9=: : >837	:: 8=9 >>>88937
95 B Ksy-Qs -fias s±šer dyr žlx cv vfi v	: =: =8 9=: : >837	:: 8=9 >>>88937
<b>95A 0x x a...x x G fi fi U</b>	<b>4</b>	<b>4</b>
95 B Ks≤ s≤Tw s sy s≤vs -awfi w≤sz Mwswz a - - Uš ≤šs s±šlr fšlr fšlr w šlr a ≤ žlr fšlv v fi vfi	4	



Vn" w@n" anor y5M-" ffr ffr q anoy 84 4

: 5bx 4x f...-x x x x ix G n	89 777 777 77737	FE ED9 7BF 7B: 37
: 58 f...-x x x V yx G fi	89 777 777 77737	AC 9DB 8B8 7B: 37
: 588 awesys s s≤Q±sz6Q rfl	89 777 777 77737	; =9>8-87< 37
: 9 U6 ≤4f ≤awesys s s≤dw s-vwesys≤Twws s≤ aws s≤aw ≤vs≤4f ≤vs≤ys≤	4	9-B=87A 77737
: 98 U6 ≤4f ≤awesys s s≤z yv cv vfl v	4	9-B=87A 77737
<b>Y x 6 fi</b>	<b>8 7FA 779 8: 8 C: 73B:</b>	<b>8 98C EFF BD9 : AA3 :</b>

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Y... f...-x x x G n	978F	9797
/80	/;0	/-0
<b>85 f...-x x x N Rx..x /fNR06n fi n</b>	<b>EE AA8 89: : 9: 3 D</b>	<b>EDACF : 8DC: 9398</b>
85B as s±Mwsz5cvxzšlr ffr	97 9B: ; 7B < 93<	8A BAA 7=>9<737
85D cw t -Mwsz5cvxzšlr ffr v z šfi	8 A8: 9=B = 737	8 =7B >88 =737
85 Qs -fawšvfi fšs≤Tšvs s≤Mwsz sšy M--szšs<š dv r r vu Wr flr xvfi vfi sxcvzšlr ffr v rffiy	88 B< ; =A ; >937	B ; <7-B B<737
85 Uš -šfš -šaj M sšy dsz5Z yv cvxzšlr ffr v vfi v	< : =AB< -AA3>	< : B= : AA A: 9398
<b>95f...-x x x j x `..šp fi n</b>	<b>8 7C: ED: DB9 C8837</b>	<b>8 7: : : D7 EA8 : D: 37</b>
95B awšvs s s e s ≤ xw avfi w ≤ sz a s 5Wfl rffi Q ≤ v fi vfi erfi w cv vfi v	<b>EC: EBA 8CE : : 937</b>	<b>EAA DFC FAB: B837</b>
95B8 Ksy-Qš -fias s±šer dyr žlx cv vfi v	87 99A 9=<77737	8: 779 7977 ; ; 37
95B9 Ksy-Qš -fik šs≤as s±šd fi tw Mš s J šfi 5Y šfi žer dyr žlx cv vfi v 5Yr rffiv ≤ tv	; 788 9=> B<737	: >8: ; ; >: >737
95B5 Mš ≤ J fi šs -fi fi fi 5Qvfi v r fffštr šfi P flu	=>7 -AB -9A 77737	=7B A8=B; <77737
95B5 Mš ≤ J fi šs -Tz 6d vtr fffštr šfi P flu	8>A B9<88; : A937	98A 9=> = 9B: >37
95B5-Mš ≤ J fi šs -Tz W ≤ 0 -šd vtr fffštr šfi P flu Y šfi ay žrffi	4	4
95B5-Mš ≤ Mwsšgžffixv P flu	4	4
<b>95B f...-x x x j x `...f..... x f x 4</b>	<b>8A7 BA8 FD: 77737</b>	<b>8BA BB: : FF C7737</b>
<b>bx xšW fi c p fi n</b> <b>Ak</b>		
95B8 Mš ≤ Mwsšgžffixv P flu	8; 7 < 8 B> 77737	4
95B9 Mš ≤ awš w s-s≤šKu- fi vfi P flu		8< << : BB =737
95 awšvs s s e s ≤ xw avfi w ≤ sz Mwsz 4Uš ≤ s 5 cvxzšlr ffr Q ≤ v fi vfi erfi w cv vfi v 3Z yv	<B ; >>=88 9>B37	:: ; 797 ; B=; 9937
95 B8 Ksy-Qš -fias s±šer dyr žlx cv vfi v	<B ; >>=88 9>B37	:: ; 797 ; B=; 9937
<b>95A 0x x a..x x š fi fi U</b>	<b>4</b>	
95 B8 Ks ≤ s ≤ Tw sšy s vs -avfi w ≤ sz Mwsz a ≤ - Uš ≤ s špžlr fltr fffku wšfi a ≤ žltž ffr Q ≤ v fi vfi vfi	4	4



Vn" w@" anor yM- " ff' ff q anoy 84 4

: 5bx 4x f...-x x x x ix Q n	B: F9C : D7 8D9377	CA FAD77: B8B377
: 8f...-x x x V yx C fi	B: F9C : D7 8D9377	CA FAD77: B8B377
: 88 awss s s≤Q+sz6Q r fl	< B9=: >7 8>9377	⇒ B; >77: <8<377
: 9 U s ≤4s ≤awss s s≤dw s-vmsys≤Twws s≤ aws s≤aw s≤s≤4f s≤s≤s	4	4
: 98 U s ≤4s ≤awss s s≤Z yv cv vfl v	4	4
<b>Y x φ fi</b>	<b>8 97C 9A8 9AC 87C3 D</b>	<b>8 8EB DED 8C9 B97398</b>

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Y... f...-x x x Cg n	9798 <sup>1</sup>
/80	/=0
<b>85 f...-x x x N Rx..x /fNR0gn fi n</b>	<b>EA: B: 87E 9C93 F</b>
88 as s±M6wsz5c vxzšlr ffr	98 >>A >A: BB>37
89 cw t -M6wsz5c vxzšlr ffr v zšlr	9 87>>7: =8: 37
85 Qs fawesvfi fšs≤Tws s≤M6wsz s s y M--szšs≤dv r r vu Wr ffr vxvfi vfi s±c vxzšlr ffr vr ffr	A > =9; >>8737
85 Uš ≤4š ≤aj M s y dsz5Z yv vxzšlr ffr v vfi v	<8 > 7: >9 B; 93 B
<b>95f...-x x x j x `..Qp fi n</b>	<b>8 78C FA8 7A9 EEC37</b>
98 awesv s s ≤e s ≤xv awfi w ≤sz a s 5Wfi r ffr ≤v fi vfi erfi w cv vfi v	<b>E9F 9D7 D7C 7B737</b>
988 Ksy-Qs fias s±šer dyr žlx cv vfi v	: 9 B<B7; 7 =A937
989 Ksy-Qs fšK š ≤as s±šd fi tw Mš s J š fi 5Y š žer dyr žlx cv vfi v5Yr r ffr v ≤ tv	=7: 99A; >77737
985 Mš ≤ J fi š -f fi fi 5Qvfi v r ffr ffr žšlr P flu	8B: 7A9 A8A: =A37
985 Mš ≤ J fi š -Tz šd vtz ffr ffr žšlr P flu	4
985<Mš ≤ J fi š -Tz W ≤0-šd vtz ffr ffr žšlr P flu Y š ž ay žr ffr	4
985<Mš ≤ Mws š ž ffr v P flu	4
<b>99f...-x x x j x `...f..... x f x 4bx x6W fi</b>	<b>8A9 C: 8 799 77737</b>
c p fi n Ak	
998 Mš ≤ Mws š ž ffr v P flu	4
999 Mš ≤ awš w s s ≤K u- fi vfi P flu	8; 9 = 8 799 77737
95 awesv s s ≤e s ≤xv awfi w ≤sz M6wsz 4Uš ≤s 5c vxzšlr ffr Q ≤v fi vfi erfi w cv vfi v3Z yv	; <7: B: 8; A: =37
95 8 Ksy-Qs fias s±šer dyr žlx cv vfi v	; <7: B: 8; A: =37
<b>95A 0x x a...x x Q fi fi U</b>	<b>4</b>
95 8 Ks ≤ s ≤T w s y s ≤vs -awfi w ≤sz M6wsz a ≤-Uš ≤s 5 P žlr ffr ffr w š fi a ≤ žlr ffr ≤v fi vfi vfi	4
<b>: 5bx 4x f...-x x x x ix Q n</b>	<b>BF EA: DD7 7BA37</b>
<b>: 8f...-x x x V yx C fi</b>	<b>F A: C 99 F7E37</b>
: 88 awesv s s ≤Q ±sz 6Q r fi	B; : =99 B7A37
: 9 Uš ≤4š ≤awesv s s ≤d w s -vms y s ≤T w w s s ≤aws s ≤ aw s y s y 4 s y s y s	<7; 7>8; >8; =37
: 99 Uš ≤4š ≤awesv s s ≤sz yv cv vfi v	<7; 7>8; >8; =37
<b>Y x Qp fi</b>	<b>8 8C8 8: DF98 9793 F</b>

Ls s s ≤Y ≤v C J s y š dwfi wess š 6a vfi žlr x v

d fi tw šd wš Kvs ≤awesvfi fšs ≤T w s y s y s ≤J w M6wsz Tst s wess s ≤ fi emysz 6dv žv Z tv s±c vxzšlr ffr žlr ffr v r fi v

K v sner rfi ffr vxvfi vfi

; A

an• n" ffjyar "tnu\_rtr" p v Pš ffr:° 9799

m k S i d m m  
 jwx - BDB f c S 1 ZB9AG6B9BA  
 Py wjww j- w h- y V - - T - z -  
 x a z T - z - 0 w 1A89F 5A8A9

Y... O..x x6g a	978D	978E
/80	/90	/:0
85 O..x xe ..x 6k fi fi a	E88 B79 C: F 98F37A	F9E: FD7BC CEA3AB
88 Kwfs<S. avys s-6av siflvf0 vfluz v	; A=B>7 B-8 989377	; BB7=>; 7< >A3 <
89 Kwfs<S. Ks s s y vs<S s6Q<su rflu dv zv O vfluz v	9B<-AA 9<7: AB37;	9=A7-8 >>><8377
85 Kwfs<S. K <ys60 vfluz v	4	B: <8777 77737
85 Kwfs<S. Q+sz6Q rfi O vfluz v	9><: <8 B8A377	9 9= < B B; >37
85<Kwfs<S. Ks< s<d s fkd s r fika O vfluz v	8 9>77>>77377	8; B =>: : : A7737
85=Kwfs<S. Ks< s<Tw s s y s<Pzlr fitz fika O vfluz v	4	4
95 O..x xc -x 6fi fi a	8CDB98: 8A A7: 37F	997 DAD: D8 7F93A9
98 Kwfs<S. V vsfies<sz6V rflu M zrf0 vfluz v	9: BB =>A>A7377	8 >: A; <: ; A377
99 Kwfs<S. V vsfiawfs s<vs<V w<60 z fi vfi rflu Wrt yzlv M zrf0 vfluz v	9B 9: B >B 89; 3A	9A; <8 <8 9B73<
95 Kwfs<S. V vsfiPw s y vs<Ks s y s<6l f f i x M zrf0 vfluz v	; >A7; BB=9; A3<8	< =8<: = 9: 73AA
95 Kwfs<S. V vsficsfs<R-y s<vs<S s y s<6c s u z S z r z f i 2 r flu Yv s f f i M z r f 0 v f l u z v	A<=> 87>B; <7377	89: 87<; ; A98<377
95<Kwfs<S. V vsfi l wews Us<=s6Z yv PzvuK v M zrf0 vfluz v	9;; <A87 777377	89 A88 97: 77A377
: 5 O..x xj -x j... x6g a	9 A8B FAF A88377	8 E9D9FD FC7377
: 8 Kwfs<S. e vs ± ewv y s 6 f l vuz vu O vfluz v	9; 8<B; B; 88377	8 A9>9B>B=7377
; 50..x xj x `..6fi fi a	8C 77A C77 777377	4
; 8 Ks< s<Tw s s y s<=w Mws6Pzlr fitz fika< s y v g z f f i x v	8=77; =77 777377	4
; 9 Ks< s<Tw s s y s<Us<=s6Z yv Pzlr fitz fika	<A7 97=877377	4
; 5 es<=w Ms< Mws6g z f f i x v P flu e r f l w	899: 9=; AA; 77377	4
Y x 6p fi	FE8 A: F F7: 7: : 38:	8 8B7 FD8 D9B D: C 3 E D

Vn" w@n" anor ySM-" ff' ff q anoy 84 B

Y... 0..x x6j a	978F	9797
/80	/; 0	/< 0
<b>85 0..x xe ..x 6k fi fi a</b>	<b>E88 B79 C: F 98F37A</b>	<b>F9E : FD7BC CEA3AB</b>
88 Kwfs<S avys s<6av sflfvf0 vfluz v	; A=B>7 B<B 989377	; BB 7=>; 7<; >A3 <
89 Kwfs<S Ks s<sy vs<Ss s6Q<su rflu dv zv O vfluz v	9B<=AA 9<7 : AB37;	9=A 7<B >>><<B377
85 Kwfs<S K s<ys60 vfluz v		B : <B 777 777377
85 Kwfs<S Q<+sz6Q rfi O vfluz v	9><: : <B 88A377	9 9=< B B; >377
85< Kwfs<S Ks< s<sd s<f6d<sz fffkzu O vfluz v	8 9>7 7>>>77377	8; B => : : : A 77377
85=Kwfs<S Ks< s<Tw s<sys<6Pzlr fltz fffkzu O vfluz v		
<b>95 0..x xc -x 6kfi fi a</b>	<b>8CDB98 : 8A A7: 37F</b>	<b>997 DAD : D8 7F93A9</b>
98 Kwfs<S V vsfies<sz6Vr flu M z rff0 vfluz v	9 : BB =A >A7377	8 >= A; <; A377
99 Kwfs<S V vsfiawsfs s<vs<V w<60 z fi vfi rflu Wrtyszlv M z rff0 vfluz v	9B 9: B >B B9; 3<A	9A; <B <8 9B73<;
95 Kwfs<S V vsfiPw sy vs<Ks sy s<6d fffkzu M z rff0 vfluz v	; >A7; BB=9; A3<8	< =B< = 9: 73AA
95 Kwfs<S V vsficsfs<3R<ys -vs<Ss -sys<6c<u2 S zxr z<f12rflu Yv s<ffim z rff0 vfluz v	A<=> 8 7>B; <7377	89: 87<; A 98<377
95<Kwfs<S V vsfiJ wews Us<=s6Z yv PzvuK v M z rff0 vfluz v	9; : <A8 777377	89 A88 97: 77A377
<b>: 5 0..x xj -x j... x6j a</b>	<b>9 A8B FAF A88377</b>	<b>8 E9D9FDFC7377</b>
: 8 Kwfs<S e vs±ewv ysf6fi vuz vu O vfluz v	9; 8<B; B; 88377	8 A9>9B>B=7377
<b>; 50..x xj x `..6kfi a</b>	<b>8C 77A C77 777377</b>	<b>4</b>
; 8 Ks< s<Tw s<ys<=wMws6Pzlr fltz fffkzu s<yv gfffxv	8=77; =77 777377	4
; 9 Ks< s<Tw s<ys<Us<=s6Z yv Pzlr fltz fffkzu	<A 7 97=877377	4
; 5 e s<=w Mb<S Mws6gfffxv P flu e rfi w	899: 9=; AA; 77377	4
<b>Y x 6k fi</b>	<b>FE 8 A: F F7: 7: : 3B:</b>	<b>8 8B7 FD8 D9B D: C3E D</b>

Vn" w@n" anor y5M-" ffr ffr q anoyr 84 48

Y... 0..x x6g a	9798 <sup>1</sup>
/80	/-0
<b>85 0..x xe ..x 6k fi fi a</b>	<b>F9E : FD 7BC CE A3AB</b>
83B Kwfs<S avys s<6av <fflvrf0 vfluz v	; BB7=>; 7<: >A3 <
83D Kwfs<S Ks s<y vs<Ss s6Q<su rflu dv zv 0 vfluz v	9=A7<B >>><<B377
85 Kwfs<S K s<ys60 vfluz v	B : <B 777 777377
85 Kwfs<S Q<+sz6Q rfi 0 vfluz v	99=> < B B; >377
85<Kwfs<S Ks< s<sd <fflvrf0 rfi 0 vfluz v	8; B=> >:: A77377
85=Kwfs<S Ks< s<Tw s<ys<Pzlr fltz rfi 0 vfluz v	
<b>95 0..x xc -x 6k fi a</b>	<b>997 DAD : D8 7F93A9</b>
93B Kwfs<S V vsfies<sz6V rflu M zrfi0 vfluz v	8 >= A; <; A377
93D Kwfs<S V vsfiawfs s<vs<V w<60 z fi vfi rflu Wrtyszlv M zrfi0 vfluz v	9A; <B <8 9B73<
95 Kwfs<S V vsfiPw s<y vs<Ks<y s<sd <fflvrf0 M zrfi0 vfluz v	< =8<; = 9: 73AA
95 Kwfs<S V vsfies<sz6R-ys -vs<Ss -ys<sc <uzs zr <fflvrf0 Yv <ffM zrfi0 vfluz v	89: 87<; ; A 98<377
95<Kwfs<S V vsfiL wews Ls<ss6Z yv PzvuK v M zrfi0 0 vfluz v	89 A88 97: 77A377
<b>: 5 0..x xj -x j..- x6g a</b>	<b>8 E9D 9FD FC 7377</b>
: 3B Kwfs<S e-vs±ewv ys6f fl vuz vu 0 vfluz v	8 A9>9B>B=7377
<b>; 50..x xj x `..6k fi a</b>	<b>4</b>
; 3B Ks< s<Tw s<ys<±wMws6Pzlr fltz rfi 0 s<yv gzfifxv	4
; 3D Ks< s<Tw s<ys<Ls<ss6Z yv Pzlr fltz rfi 0	4
; 5 es<xw Ms<Nws6g zffixv P fluer fl v	4
<b>Y x 6k fi</b>	<b>8 8B7 FD8 D9B D: C3ED</b>

Ls s s<6V s C J s<ys dvlf wss s6a vfi0 zlr x v  
 d flt w6d wC Kvs<S avys yv fi s<Tw s<ys<vs<J w Mwsz Tst s wses s< fiesys z6dv zvZ tv<svxvz s<lr ffr fltz rfi vflu  
 K v sner rfi ffevlxry cvxvft

m  
jwx - B7DC

m k i d  
m m f c i 1 Z  
B9BA  
jw - w z Py wh- - - jw w j- w h- - y  
V - - x a z h- - - 0 w 14A8A9

Y... f...-x x x G n	jx ... pf	h.x x U fi	f..... x ... l fi
/80	/90	/:0	/:0
85 f...-x x x N Rx..x /fNR0n fi	888 =>7; : >8737	A; : < 87A9=93 B	>3<<
85B as s±Mšwsz6cvxzšlr ffr	9=98A: A<7737	98 >A >A: BB>7	A: 37>
85D cw t -Mšwsz6cvxzšlr ffr v z šf	87; <B; 8: 7737	987>>7: =8: 37	973<
85 Qs fšwsywfš fšs≤Tws s≤Mšwsz sšy M--szšs≤šdv r r vu Wr flrxvfi vfi švcvzšlr ffi h vr ffi	B7A=9; >>8737	A>: =9; >>8737	B=3<
85 Uš <šs≤šJ M sšy dsz6z yv cvxzšlr ffr v vfi v	=<A89 BBA7737	<8>7: >9 B; 93 B	>A3<8
95 f...-x x x j x `..f n	8 787 : >8: B; 7A; 37	8 78=8; 87; 9 AA=37	8773<
95B f...-x x x j x `..f..... x f x 6 W fi c p fi n	A9=978 7<9; A37	A9B9>7 >7=7<37	8773 >
95B8 Ksy-Qs fšas sšer dyr šlx cv vfi v	8A8; ; ; A=7737	: 9 B<87; 7 =A937	8A83<
95B9 Ksy-Qs fšK šs≤as sšd fl tw Mš s J fš fl 6 Y ššer dyr šlx cv vfi všYr r ffr v ≤ tv	=7: 99A A; >7737	=7: 99A A; >7737	87737
95B5 Mšs J fi šs -f fl fl 6Qvfl r fš ffr zšl P flu	97; A9>>9; 9; A37	8B: 7A9 A8A: =A37	B; 3>
95B f...-x x x j x `..f..... x f x 4bx xW fi c p fi n Ak	8; 9 = 8 799 77737	8; 9 = 8 799 77737	87737
95B8 Mšs awšw s s≤šku- fi vfi P flu	8; 9 = 8 799 77737	8; 9 = 8 799 77737	87737
95 f...-x x x j x `..f..... x f 6 l c p fi n	; 8 < B: 8; A: =37	; <7: B: 8; A: =37	87A3:
95 B8 Ksy-Qs fšas sšer dyr šlx cv vfi v	; 8 < B: 8; A: =37	; <7: B: 8; A: =37	87A3:
:5 bx 4x f...-x x x Rx..x x ix 6 k n	9 =A>7; 7 <: 37	<8 A; : >>7 7< 37	88: 3A
:5B awšw s s≤Qšzš6Q rfl	9 =A>7; 7 <: 37	<8 A; : >>7 7< 37	88: 3A
Y x š fi	8 8DA D8B ADE : CD37	8 8C8 8: D F98 9793 F	FE3EA

Ls s sšs≤v C J šyš dvl wšs š6 vfi šlr x v  
d fl tw 6d wC Kvs sšwsywfš fšs≤Tws sšy sšs≤J w Mšwsz Tst s šes s≤ fšwsyš6dv švZ tv švcvzšlr ffr šlr fl tv r vl  
K v šer r fl fševlrx cv xvft

m k S i d  
 m m f c S 1 25B9BA  
 jw - w z Py wT - z - jw w j- w  
 h- - y V - - x a z T - z - 0 w 14  
 A8A9

Y... 0..x x6q a	jx ... pfi	h.x x U fi	f..... x ... l fi
/80	/90	/:0	/:0
85 0..x xe ..x tk fi fi a	8 788 9D7 DA7 EEC37	F9DFFD8DF 87E37	F83DD
85B Kwfs<S awys s-6av siflvfvd vfluz v	>7 88>; =>8<37	;;; :>; A; : 7A37	B; 3<9
85D Kwfs<S Ks s>y vs<Ss s6Q<su rflu dv zv O vfluz v	:<8 <8: ::: 97<37	9B=8A7 ; 9; A9A37	A; 3=
85 Kwfs<S K >ys697 v v O vfluz v	A 98A 8; 9 B=>37	=A7; 8B8 A<37	A9>B
85 Kwfs<S Q+sz6Q rfi O vfluz v	: ; ><=9 87737	: 9B=>A9 B7737	B; 3<
85< Kwfs<S Ks< s<sd >fvd<tr ffxu O vfluz v	<9B <7 77737	<9B <7 77737	BA3 B
85= Kwfs<S Ks< s<Tw s>ys<6Pzlr fltv O vfluz v	8>>; 8=><<B7737	8>=A8A AB<98<37	BB3=
95 0..x xc -x 6vfi fi a	9DD9B8 CD9 B: D37	988 877 : 8C : 7D37	DC3BA
95B Kwfs<S V vsfiawsfs s<vs<V w<60 z fi vfi rfiu Wrtyzlv M zrfvd vfluz v	9A: 98 8: <AA; 37	9<87A 9< A; 937	AA3=
95D Kwfs<S V vsfiPw >y vs<Ks>y s<6l zfidlx M zrfvd vfluz v	>8 898 9B<7=>B37	= ; >8 > A 89<37	AB3D;
95 Kwfs<S V vsfiSfs<R>ys -vs<Ss >ys<6c >u2 S zxr zfi2rfiu Yv <6fiM zrfvd vfluz v	8>; : A8 >=>9B37	897 >; 8 8>7 < 937	=B3D;
95 Kwfs<S V vsfiJ wews l6<6z yv Pzvu K v M zrfvd vfluz v	: ; 9>=>8; B<<37	8 >>B 8; : >BA37	<8.38
: 5 0..x xj x -x j...- x6q a	8 89E : DD : F: 37	DCE : : E CB737	CE37F
: 5B Kwfs<S e>vs±ewv ysf6l fl vu2 vu O vfluz v	8 89A: >>: B: 37	>A: : A =>737	=A37B
A50..x xj x `..6p fi a	8 E: : EEF F7737		4 4
; 5B Kwfs<S Ksy-Qs >f6dyr zlx O vfluz v	8 A: : AAB B7737		4 4
Y x 6p fi	8 9F8 AEA CE7 D8C37	8 8: F ECB E: A 7CB37	EE3C

Ls s s<6Y<V C J>ys dvlf wss s6a vfi zlr x v  
 d flt w6d wC Ksvs<aweyvfi fs<Tw s>ys<vs<J w Mwswz Tst s wses s< fiemysz6dv zvZ tv sicvzxzlr ffrzlr fltv rlv  
 K v >er rfi ffevfxry cvxvft

m  
j w x - B7D E

i k i m m  
i i d m m  
f c i 1 2B9AG B9BA  
f - y - w - Py w h - - - j w h - - -  
j w w j - w h - - y V - - x a z h - - -  
0 - y- 14A89F A8A9

Y... f...-x x x Gg n	978D	978E	978F	9797	9798
/80	/90	/:0	/:0	/-0	/-0
8 as s±Mšwsz6cvxzfir ffr	B93 >	=83A	> 3<=	A; 39	A: 3>
9 cw t -Mšwsz6cvxzfir ffr v z zfi	; =3A<	; <3B;	8B3B;	: 83 =	973<
: Qs fiasywfir fšs≤Tves s≤Mšwsz s sy M -sz s≤dv r r vu Wr flrxvfi vfi sv cvxzfir ffr vr ffr	BB3B=	A8.3B	B=3A7	B>3:	B=3<
; Uš s≤a M s sy dsz6Z yv cvxzfir ffr cv vfi v	A=3 7	A>3 >	A<3=8	AA3B	>A3=8
< Ksy-Qs fias s±ber dyr zlx cv vfi v	A73B7	A: 3A9	=73:	> 3<	8A83<
= Ksy-Qs fIK s≤as s±6d flt w Mš s J fš fl 6 Y s±ber dyr zlx cv vfi v sYr r ffr v ≤ tv	<93 >	88=3B:	=>3:	B>3:	
> Mš s J fi s -fi fl 6Qvfi r ffr ffr zfi P flu	87737	87737	87737	BB3 7	87737
A Mš s J fi s -Tz 6d vtr ffr ffr zfi P flu	B; 3:	B; 3A7	AB3A=	BB3A>	B; 3>
B awšv s s s e s≤xw awfi w≤sz a s 4 Uš s≤s6Wfi r ffr v fi vfi erfi w cv vfi v 3Z yv	BB3A8	4	87737	87737	87737
87 awšv s s s e s≤xw awfi w≤sz Mšwsz 4Uš s≤s6cvxzfir ffr v fi vfi erfi w cv vfi v 3Z yv	B>3=8	87; 3B>	B93=8	87B3<	87A3:
88 Uš s≤a awšv s s s s s y dsz6Z yv cv vfi v	87737	B>3=8	88A3 >	AB3 A	88: 3A
<b>Y x Gg fi</b>	<b>FD3 E</b>	<b>FC3F</b>	<b>FC3D</b>	<b>FD3F</b>	<b>FE3A</b>

Ls s s≤6v C J s±s dwfi wšs s6a vfi zlr x v  
d flt w6d uwC Ksvs≤awšvfi fšs≤T w s s y s v s s l w Mšwsz Tst s wšs s≤ fšwšs y 6dv zlv Z tv sv cvxzfir ffr fltr fltr v flu  
K v sner rfi ffr flxry cvxvfi



m  
j w x - B D F

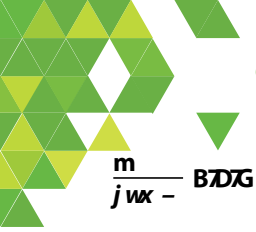
i k S m m S  
i d m m f c  
S 1 ZB9AG B9BA  
f - y - w - Py w T - z - j w -  
T - z - j w w j - w h - - y V - - x  
a z T - z - 0 - y - 1A489F A8A9

Y... 0..x x g a	978D	978E	978F	9797	9798
/80	/90	/:0	/:0	/<0	/=0
85 Kwf s s awy s s 6av s f f i v f f i 0 v fluz v	B < 3 =	B < 3 >	B 7 3 <	B: 3 9	B: 3 > 9
95 Kwf s s Ks s y vs s s s 6 Q s u r f l u d v z v 0 v fluz v	B 8 3 >	A B 3 = A	A: 3 B	B: 3 ;	A: 3 =
:5 Kwf s s K s y s 6 f l v v 0 v fluz v	4	4	4	; 7 3 >	A 9 3 B
;5 Kwf s s Q + s z 6 Q r f l 0 v fluz v	A: 3 >	B > 3 = 7	B: 3 :	B A 3 7	B: 3 A <
<5 Kwf s s Ks s s s d s f i d s r f i k a u 0 v fluz v	; < 3 ;	B A 3 8	B < 3 9	B A 3 <	B A 3 B
=5 Kwf s s Ks s s s T w s s y s s p z l r f t z f f i k a u 0 v fluz v	B B 3 8	B B 3 > 9	B B 3 A	B B 3 <	B B 3 =
>5 Kwf s s V v s f 6 M z r f 0 v fluz v	B: 3 9	> 9 3 =	B A 3 ;	> 3 8 <	> 3 8 ;
A5 Kwf s s e v s t e w v y s 6 f l v u z v u 0 v fluz v	B B 3 =	> 3 9	8 > 3 A	B 8 3 B	= A 3 B
Y x 6 f i	F A 3 D	E F 3 E	E F 3 A	F 7 3 F	E E 3 C

Ls s s s 6 v C J s y s d w f i w e s s 6 a v f f i z l r x v  
d f l t w 6 d w C K s v s s a w e y w f i s s T w s s y s s v s s j w M w s z T s t s v e s s s f i e n y s z 6 d v z v z t v s i v x z s l r f i z l r f t v r f l u  
K v s e r r f l f f e v l x r y c v x v l t







m  
jwx - B7DG

k i i d S f  
S d m m 5B9BA  
Py wh- - - l- y-jwx c jw w j- w  
h- - y 4A8A9

	l d fi	Y fi	Y x d x
0 x	0x x	0x x	p fi rfi
i	a...-x xx	a...-x xx	/ x x C
	j fl / x x C	j fl / x x C	fi 0
	r / 6 0	r / 6 0	fi 0
/80	/90	/:0	/:0
Ss ≤ s -6r fl r	9 988	8 9B; 3:	8AA 9739 <b>8: 8A37A</b>
Ont s -6vs r	9 7: =	8 9883=	8: 9 883 8 <b>8 99: 37B</b>
V s w6W r ty	9 78A	8 9A: 3;	8AB :: 3> <b>8: 8C3B9</b>
J -6K zfi	8 =B<	8 8: ; 3=	8> 9; 3: <b>8 8BE3C</b>
V w6Wvz	8 =8A	8 7= 3 8	8: B 8939 <b>8 7DC39</b>
S ≤ 6T flv	8 A; <	8 : 8> 38	8> 9: 3=A <b>8: A73DF</b>
S f6T ffi	8 B-9	8 :: B3 7	89: 8=9 <b>8: BC39</b>
Jy -6K x	8 BA9	8 9; B3 A	8< 8> > <b>8 9CC3B</b>
dw wfl tw6dv vfi sv	9 9; ;	8 =; 3=B	8: ; 9: 3=; <b>8 CCE3A:</b>
Y ± tw6Zt ≤ v	9 8; >	8 ; B< 3=	878 893> <b>8 87E3D:</b>
W wfl tw6Y ≤ vfi sv	9 : BB	8 B= 3B	4 4 <b>8 FCD3F</b>
Mw wfl tw6Nvtvfi sv	9 A<=	9 : B: 3=	= 3B <b>9 A773AB</b>
<b>9798</b>	<b>9B 77:</b>	<b>8D: FB3B</b>	<b>8 BE9 97937 8D BFE3 C</b>

d fl tw6 ≤ tvC f aAMKsvs ≤ asey wfi fi as ± vs ≤ cw ± -Mwsz a ≤ -d fls wsf s s as ± vs ≤ 6cvx z fl rfi r rfl cv z fl  
W r fl xvfi vfi Kxvfi f aAN ≤ d fi r v r f r r a ≤ 3 tv 3 l ar flur fl

$\frac{m}{jwx -}$  B7DH

k i S S g d  
 S 5B9BA  
 Py wh- - - c l- y- j w - jw jw w  
 j- w h- - y 4A8A9

	$l$	$d$	$fi$	$Y$	$fi$	$Y$	$x$	$d$	$x$
$0$	$x$	$x$	$d$	$x$	$d$	$j$	$x$	$l$	$x$
$i$	$a...-x$	$xx$	$r$	$fi$	$a...-x$	$xx$	$r$	$fi$	$/$
	$j$	$fl$	$/$	$x$	$x$	$C$	$j$	$fl$	$/$
	$r$		$r$		$x$	$x$	$C$		$fi$
	$/$	$6$	$0$	$fi$	$0$	$/$	$6$	$0$	$fi$
	$/80$	$/90$	$/:0$	$/:0$	$/:0$	$/:0$	$/:0$	$/:0$	$/:0$
$0.x0x$	$dx$	$xW$							
$pfi$	$pi$	$e$							
$Ss \leq s$	$-6Tr$	$fl r$	:	A;	8A	<>>	4	4	8EBDD
$Ont s$	$-6Pvs$	$r$	:	<A	8>	37;	4	4	8D: 37A
$Vs w6W$	$r$	$ty$	;	78	8B83	;	8	73;	8F83CF
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$Y \pm$	$t w6Z$	$t \leq v$	<	8<	9: A3	8	4	4	9: E3 8
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**BAB**  
Chapter

**03**

# PENDUDUK DAN KETENAGAKERJAAN

*Population and Employment*

<https://tapanulitengahkab.bps.go.id>



<https://tapanulitengahkab.bps.go.id>

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**j TRWdXPb de j Ti**

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9788@78; 3' nrx.."n° v p-" qffpf q  
-" n" ffn.ff.y. on°v vDPro.fñ...  
/Pv:ff ] ffn.ff.@ Wn /rp-"q  
] ffn.ff.@ Kft fff' /auv.q ] ffn.ff.@  
n"q X- rz or.../P-fffu ] ffn.ff.@

a.v. yn" n" 2 nv© Oro...n.v.  
 .a.v. yn" S2 Wrv .a.v. yn" S/2  
 Jt °©° .a.v. yn" S/2 qn"  
 X- rz or...a.v. yn" S/4 nrx...n°  
 a.v. yn" n" v v qv nx° qxn"  
 "©x z rz n" © v qxn©...  
 xr©" nt nrx.wan" °rpn.n qv v qv  
 S' q-" r°v n" t z r" t np • nqnaur  
 Ur S' qv nff...-sfur Vho-ffi.Wn.xrff  
 /USWO n" t qvrx-z r" qn°xn"  
 -yu aur S' ff...nff-" ny Vho-ffi..  
 Y.t.n" v nff-" /SY 04 W ynv  
 ©u " 867; 2 • r" t z • yn"  
 qn© ' nrx...n° qvnx° n" nrx"  
 xrz ony °rpn.n °rz r°@.n"  
 • nqn Oro...n.v. ' rz r°@... S  
 qn" Jt °©° ' rz r°@... S/4

' rwx ' nrx...n° 86672 x-" °r.  
 ©©° • rrx.wan" qn"  
 • r" t n" t t .n" z r" t nyz v  
 • r.y.n° n" qn" • r" rz • ..nn" 4  
 ' ©©° • rrx.wan" n" t • nqn  
 ' nrx...n° 8666 un" n; xn©t-.v  
 z ynv ©u " 8667 qv©z onuxn"  
 xn©t-.v. on..2 nv©C • rrx.w  
 oron° qv • r.©" v n" qn" • rrx.w  
 oron° qv " -" • r.©" v n" 4 ' ryv  
 ©2 qnyz .n" t xn z r" r° nrxn"  
 qr" t n" x-" °r. SY2 x-" °r.  
 • r" t n" t t .n" @.a xnqvr.y.n° 2  
 nv© qv °nz • v t z r" pnx •  
 • r" q q x n" t nx© z r" pn.v.  
 • rrx.wan" 2 z r" pnx • • yn  
 xry-z • -x • r" q q x n" t  
 °rqn" t z rz • r.°n° xn" °nun5  
 • rrx.wan" on..2 xry-z • -x  
 • r" q q x n" t ©qnx z r" pn.v.  
 • rrx.wan" xn.r." n z r.n° n  
 ©qnx z " t xv z r" qn° n©n"

K J ffn.ff.y. ' nrx...n° v nvz rq ff  
 z -" vf...ffur • -z • ff v qv nff...-s  
 S' q-" r°v n" yno-ffi.z n.xrff uvpv  
 .rsr..rq ff aur Ur S' qv nff...  
 -s ffur Vho-ffi.. Wn.xrff /USWO  
 .rp-z z r" qr qo aur S' ff...nff-" ny  
 Vho-ffi..Y.t.n" v nff-" /SY 05 ' v pr  
 978<3 nrx...n° un° orr" p-" qffpf q  
 -" on" " ffny on° v nt nv 3 ffur  
 sv:ff °rz r°ff...-" Pro. ffn... n" q  
 ffur yvff... °rz r°ff...-" Kff ffffb

' v pr ' nrx...n° 97783 ffur p-" pr• ff  
 -s rz • y z r" ff °ffiff n" q  
 ff' rz • y z r" ff n° .r. v°r q5 aur  
 rz • y z r" ff °ffiff • .r. v-ff y  
 p- r.rq -" y < pnff t-.v.°3offf° v pr  
 9778 ff -" r pnff t-.v.° -s pn° ffny  
 rz • y rr o-fu v nt.vpfyffir.  
 n" q " -" 4nt.vpfyffir. °rpf...un r  
 orr" nqqrq5S' nqqrq5" 3ff nqn• ff  
 ffur SY p-" pr• fb ffur p-" pr• ff  
 -s ff' rz • y z r" ff n° ny-  
 r ff" qrq5 b" rz • y z r" ff p- r...  
 • -" ffynff-" u- r.r. y-xv t  
 s... -x3 • -" ffynff-" u- r.r.  
 r°ffoyv v t n" r offv r°vz. 6  
 r°ffoyvuz r" fb qv p-ffintrq wo  
 °rrxr.°3n" q ffu-°r u- r.r. "-ff  
 npffv ry y-xv t s... -x. vfu ffur  
 .rn° -" -s ny.rnq un v t wo offff  
 "-ff fh. ff' t ff -x./sffiffir. °ff. ff. 05

' v pr 978; 3 ffur r v uff' t -s  
 9787 97: < • -" ffynff-" • -" wvffv"  
 .r.°ffff n° n° • yr q v ffur ' nrx...n° 5





• rxr.van" 2 °r. @n xry-z • -x  
 • r"q q x n"t @qnx nx@s  
 z r"pn.v. rxr.van" qr"tn" nyn°n  
 ° qnu z rz • " nv • rxr.van" 2  
 @ @• v ory z z ynv orxr.van4

' r vax 867: 2 ' nxr. ".n°  
 z r"tt "nxn" • r"v on"t  
 un°y • .: rx°v • r"q q x  
 @nu " 8676 869; 4

784 [r"q q x °vn xr.van  
 nqnyu • r"q q x n"t  
 or..z ... 7; @nu " xr n@°4

895 d-.xv't ntr •-• ffnff-" v°  
 • r.°:-"° -s 8< rn.°: n"q - r.5.

794 J"txn@n" xr.van nqnyu • r"q q x  
 °vn xr.van .7; @nu " xr n@°/  
 n"t orxr.van2 • " n • rxr.van"  
 "nz " °rz r" @.n @qnx  
 orxr.van2 qn" • r"tn"tt .n"4

8: 5 Vno-..s-.pr -.xrp-"-z vnyy npfv r  
 n.r. r.°:-"°-s8< rn.°: n"q- r.3. u-  
 v' fur • .r. v-ff rrx r.r. -.xv't 3  
 ffz • -.n.wy no°r" ffs.-z -.x.offf  
 un v't wo°3 n"q ffrz • y- z r"fb

7: 4 Krxr.van nqnyu xrtvn@n" rx-"-z v  
 n"t qvnx xn" -yr u °r°r-.n"t  
 qr"tn" z nx° q z rz • r.-yr u  
 n@ z rz on" © z rz • r.-yr u  
 • r"qn. n@n" n@n xr " © "tn"  
 qn" ynz n" n orxr.van • nyv't  
 °r qvkv°7 vax °rpn.n@...z r"r...°  
 qnyz °rz v'tt n"t yny  
 .@.z. n° x • rxr.van xry n.t.n@n" • n  
 • nu n"t z rz on" © qnyz  
 ° n© °nun5xrtvn@n" rx-"-z v4

8: 5 d-.xv't v° rp-"-z v° npfv vf  
 p-" qffpfqo n • r.°:-" n"qv'ff" qrq  
 ff rn.°. v'p-z r o q-v't -.x.-...  
 ury v't ff-q- -.x.nffyr n°ff-" r u-ffi..  
 p-" ff' ff-fffy qffiv't ffor .rs.r."pr  
 rrx /' pyffqv't ff' • nvq snz wy  
 -.xr.6° s-.n" rp-"-z v°npfv vf 05

7; 4 T z ynu vax xr.van °ry ...u" n  
 nqnyu wz ynu vax xr.van n"t  
 qt "nxn" " © x orxr.van .@qnx  
 @.z. n° x vax xr.van v°@nun©.t:z v  
 qn" vax xr.van n"t qt "nxn"  
 " © x uny@uny qvy n...: rxr.van" /4

8<5 a-fhy -.xv't u-ffi°. v' fur ff-fhy  
 u-ffi°. °r"ff o n" rz • y- rr ff  
 • r.s.-z. nyy wo° /r pyffqv't ffor  
 ffz r ffrq s-... -ffv... npfv vfr°  
 upu n.r. "-ffpy n°vraq n° -.x05



7<4 Vn• n"t n" °nun nqnyu ovqn"t  
xrtvn@n" qn.v. •rxr.vmn"5  
@z•n@ orxr.vmn qv z n"n  
°r°r-.n"t orxr.vmn4 Ujn°vxn°v  
yn• n"t n" °nun z r"tv @  
Ujn°vxn°v Knx Vn• n"t n" b°nun  
S'q-"r°v .UKVS/ qnyz 7 qtv@

7=4 ' @° •rxr.vmn" nqnyu  
xrq q xn" °r°r-.n"t  
qnyz " @ °nun5xrtvn@n"  
qnyz z ryx xn" •rxr.vmn" 4

7A4 Kr...°nun °r"qv.v. nqnyu  
orxr.vmn n@ or...°nun qr"tn"  
z r"n"tt "t .v.v- °rpn.n  
rx-"-z v2 nv@ qr"tn" @qnx  
xrz ony' n -"tx-° •.q x°v  
n"t @ynu qwry n.xn" qnyz  
.n"txn °nun" n @.°ro @°r.@  
@qnx z r"tt "nxn" •rxr.vmn  
qvon n... z n • " •rxr.vmn @nx  
qvon n.2 @.z n° x n"t °v@  
•rxr.vmn" n z rz r.y.xn"  
@x"-y-tv n@ xrnyvn" xu ° °4

7B4 Kr...°nun qvon" @ o ...u @qnx  
@ @.5o ...u @x qvon n...nqnyu  
orxr.vmn n@ or...°nun n@ .v.v-  
°r"qv.v2 qn" z r"tt "nxn"  
o ...u5 rxr.vmn @nx qvon n...qn"  
n@ o ...u5 rxr.vmn @qnx @ @.4

864 Kr...°nun qvon" @ o ...u @ @.5  
o ...u qvon n...nqnyu orxr.vmn  
n@ or...°nun n@ .v.v-  
°r"qv.v2 qn" z r"tt "nxn"  
o ...u5 rxr.vmn qvon n... qn"  
n@ o ...u5 rxr.vmn @ @.4

8=5 S' qffff.. v sryq -s n •r.°:-"°  
npfv vf ... r°ffhojuz r"fb aur  
pn°°vsnffr-" -s v qffffv.° s-yy- °  
ffur S'q-"r°v ' ff"qn.q S' qffffvay  
Mjn°°vsnffr-" /ULVSD v -"r qtv vf

8A5 Qz •y- z r"ff °ffffff v ffur  
°ffffff -s n •r.°:-" nff uv° •ynpr  
-s -.x. -... r°ffhojuz r"ff  
ur.t. ur n° rz •y- rq5

8B5 Y "4npp-fff ff -.xr..v° n •r.°:-"  
u- -.x° nff ur.6uv° - " .v.x  
vfu-fff n°°vffq o •nvq •r...  
z -fff ff -.xr...-...fff •nvq -.xr...  
v pyffr ffpu"vny wo ...°xy wo5

8C5 Qz •y- r...n°°vffq o ffz •-.n...  
-.xr.6ff •nvq -.xr... v n  
•r.°:-" u- -.x° nff ur.6  
uv° - " .v.x n"q n°°vffq o  
ffz •-.n... -.xr.6ff •nvq -.xr.5.

975 Qz •y- r...n°°vffq o •r.z.n"r"ff  
-.xr.6nvq -.xr...v° n •r.°:-"  
u- q-r° uv°ur..offv r°° nffur.6  
uv° - " .v.x nffyrn°ff-"r n°°vffq  
o •nvq •r.z.n"r"ff -.xr.5.

874 K ...u5Un..n n"5[rtn nv nqnyu  
 °r°r-.n"t n"t orxr.wm • nqn  
 -.n"t ynv n@ v°@°°5x"°@.5.  
 • r...°nunn" °rpn.n @@. qr"tn"  
 z r"r.v n • nu5t n2onx or... n  
 n"t z n • " on.n"t4 K ...u  
 n"t @qnx z rz • " nv z nwk"  
 @@. @qnx qt-y"txn" °ront nv  
 o ...u5xn..n n"5 rtn n2 @@.v  
 °ront nv• rxr.wm oron°4°r°r-.n"t  
 qn"ttn• z rz yxv z nwk"  
 @@. wkn z rz yxv 7 .°n@/  
 z nwk" .-.n"t5.z nu @"ttn/  
 n"t °nz n qnyz °ro yn"  
 @.nxuv4. Uu ° ° • nqn °rx@...  
 x-"°@.x°von@°n" n@tno yn"4  
 J•nown z nwk" n v°@°°5  
 yz ont n2 o-yru yow qn.v.°n@4

884 [rxr.wm Kron° nqnyu °r°r-.n"t  
 n"t orxr.wm • nqn -.n"t ynv 5  
 z nwk" 5y°@@°v n"t @qnx  
 @@. .yow qn.v. 7 z nwk"  
 qnyz °ro yn" @.nxuv/. n"t  
 z r"pnx • r.@°v" z n • "  
 "-•r.@°v" 2onx or... n °nun  
 ..z nu @"ttn z n • " o xn"  
 °nun ...z nu @"ttn n@° qn°n...  
 ony° w°n qr"tn" z r"r.v n  
 • nu n@ v onyn" 2onx or... n  
 n"t z n • " on.n"t2qn" onx  
 qr"tn" °v@z • rz on n.n"  
 un.w" z n • " o-...°tn" 4b°nun  
 • r.@°v" z ry• @C • r.@°v"  
 @°nz n" • n"tn" 2 • r.xro "n" 2  
 xru @°n" 2r@°..nxn" 2r.wn"n"  
 qn" • r.a ...n" 2 @.z.n° x w°n  
 • r.@°v" 4°nun "-•r.@°v"  
 z ry• @C °nun qv °rx@...  
 • r.@°z on"tn" 2 °rx@...v q °@v

985 Qz • y rr v° n • r.°:-" u- -.x.  
 • r.z.n"r"ff s-...-ffur...r-y -...  
 v°fffff"-6-sspr@p-z • n" n"q  
 tnv° °-z rz -"r @p°u -.t--q°  
 n° ntr6°ny..5 vho-... u- un r  
 "- • r.z.n"r"ff rz • y-r...v° "-ff  
 pnff-t.v.rq n° n yno-.r.6. -.xr.6.  
 rz • y rr offff pn°ffny -.xr.5. K  
 yno-.r.:°v tr"r.nyv p-"°vqr.rq ff  
 un r n • r.z.n"r"ff rz • y-r...s ur  
 un° ffur °nz rz rz • y-r..qffiv°t ffur  
 • n°ffz -"ffu3 n.ffpfyn.y.s.offyqv°t  
 p-"°fffff"- °rpf..v° : z -"ffu°5s  
 ffur rz • y-r..v°n" v°fffff"-3z -.r.  
 ffun" 8 /-°r0rz • y-r..v° ny- rq5

995 Mh°ffnyd -.xr.v°n • r.°:-" u-q-r°  
 "-ff -.x. • r.z.n"r"ff s-...-ffur...  
 • r-y@z • y-r.6°°fffff"- /z -.r.  
 fun" 8 rz • y-r..qffiv°t fur yn°ff8  
 z -"ffu0 upu v°pyfq° nt .vffiffiny  
 -...-° nt .vffiffiny °rpf...r°vur...  
 u-z r v° qffiff..-...-ffu-z r v° qffiff..  
 on°rq -" .rz ff'r.nff"- • nvq vfu  
 z -"r -.t--q°3 n"q on°rq -"  
 qny -..p-"ffnppf°n z r"ff° °ffz 5  
 Kt .vffiffinyDv° qffiff.. p-r.:s--q4  
 on°rq nt .vffiffinyβ • yn"fhff"-3  
 s-r.°ff.3 o.r.rqv°t 3 svur..3  
 v°pyfq°t nt .vffiffiny °r...vpr°5  
 X-" 4nt .vffiffinyD v° qffiff.. p-r.:  
 v° qffiffv.° v° z v°v°t 3 ry.pff.vpf3  
 tn°3 nff .3.offyqv°t p-"°fffff"-3  
 ffnr3ffn"°°-.fhff"-3 n.r.u-ffiv°t  
 n"q p-z z ff'vnpff"-3 sv°n°pnyβ  
 v°ffin"pr3 • ...r.ff yrn°v°t n"q  
 °r...vpr° v° qffiff.3 • ffoyp °r...vpr°3

°rx@...y°@x2tn° qn° nv2°rx@...  
 x-°@.x°v5on°t " n°2 °rx@...  
 • r.qntn°tn°2 °rx@...n°tx @n°2  
 • r.t. qn°tn° qn° x-z "xn°v2  
 °rx@... xr n°tn°2 n° .n°°v2  
 °nun • r.°r nn° on°t "n°2  
 @n°nu qn° wn°n • r...°nunn°2  
 °rx@... wn°n xrz n° n.nxn@n°2  
 °°vny qn° • r...n°tn°4

°-pnvy n°q v°qv qffny °r...xpr°5

894 [rxr.wm xry n.t.n5onx qvon n...  
 nqnynu °r°r-.n°t n°t  
 orxr.wm z rz on°@ -.n°t ynv  
 n°t or...°nun qr°tn° @qnx  
 z r°qn° n° • nu5t nw2 onvx  
 or...n n°t z n° " on.n°t4

9:5 b°•nq6p-°ffwffft snz y -.xr...  
 v° n°r.°:-° u- -.x° s-...-ffur...  
 • r-°y vfu-ffff n°v pn°u-.t.--q°5

8: 4 b° nu5t nw or.°xu °ro yn°  
 z r...°nxn° v2 onyn°5onyn° wn°n  
 n°t qv@.v2 n°rynz n°ro yn°  
 n°t yny onvx or...n n°t  
 z n° " on.n°t n°t qvon n.xn°  
 -y-u • r...°nunn°5xn° @.5z nwxn°  
 qn.v.°rxr.wm° @nz n xr°nqn  
 o ...u5xn...n n°5°r tn°nv4  
 U-z -°r°r° • nu5t nw z r°pnx •  
 tnwqn° @° wn°tn°2 • nu yr z o .2.  
 n°t @n°°-...qn° n°t z nxn°4

9:5 Xrff ntr6°nyn...°r.z -°ffu°v ntr  
 .rprvrq qffiv°t yn°ffz -°ffu3v°ffur  
 s-z. -sz -°r -.t--q°3°nq o  
 ffur p-z°n° @ntr°p @z°y°r...  
 ff ffur rz°y°rr s-...ffur z nw...  
 -x. q-°r5 aur p-z -°r°ff -s  
 ntr v°pyffqr °nyn...n°q or°rsvff3  
 - r.fiz r °n3 ff°n°°-°ffff-°  
 nyy- n°pr n°q z rny nyy- n°pr

8; 4 [r°tn°tt ..@.a xn2@.qv.v.qn.vC  
 n4 Wr.rxn n°t @nx • " n  
 • rxr.wm° qn° z r°pn.v°rxr.wm°4  
 o4 Wr.rxn n°t @nx  
 • " n • rxr.wm° qn°  
 z rz°r.°vn°xn° °nun4  
 p4 Wr.rxn n°t @nx • " n  
 • rxr.wm° qn° @qnx z r°pn.v.  
 • rxr.wm°2 xn.r°n z r.n°n @qnx  
 z "txv°z r°qn°n@n°°rxr.wm°4  
 q4 Wr.rxn n°t ° qnu

9<5 b°rz°y°z r°r°fB uvpup-°°vff -sD  
 n5 [r.°:-° vfu-ffff -.x.  
 offff y-xv°t s-... -.x5  
 o5 [r.°:-° vfu-ffff -.x. u- un r  
 r°ffhoy°urq n°r offv°r°°@vz.5  
 p5 [r.°:-° vfu-ffff -.x. u- r.r.  
 "-ff y-xv°t s-... -.x3 orpnffr  
 ffur q-°-ffr°r°pff ff sv°q -.x5  
 q5 [r.°:-° u- un r z nqr  
 n..n°trz r°ff ff°ff°ff -.x.  
 -° n qnff °ffo°r°ff°ff ff ffur



• " n • r x r . w n " 2 @ @ • v . r s r . r . " p r • r . v - q / s f f f f r . ° f f . f f 0 5  
o r y z z y n v o r x r . w 4

8 < 4 a [ a . a v t x n © [ r " t n " t t . n " 9 = 5 b \_ / b " r z • y - z r " f f \_ n f f 0 v  
a r . a x n / n q n y n u • r . : r " @ ° r • r . p r " f f i t r - s f f r z • y - z r " f f f f  
w z y n u • r " t n " t t . n " @ . u n q n • f f i r " f f z o r . . = s y n o - . s - . p r 5  
w z y n u n " t x n @ " x r . w 4

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POPULATION AND EMPLOYMENT

**C7A** i VgUnUnd  
f e f k b P j X e d

$\frac{m}{jvx -}$  **C7A7A** i i 5e i i 5U  
i i 5d i i 5  
k c d i f d  
d m m 5B9B9 B9BA  
f w 4f w V hw -4f - y- w -  
S x f w 4f w S- 4w z i -  
hw x i xz y jw w j- w h- - y 4A8A8 w z  
A8A9

a.zx x x o fl	f... - / x0 l fi 1 2	bx f... y x f... - ... jx U fl fi c nfi l 2
	9797 <sup>80</sup>	9798 <sup>90</sup>
	9787 49797 <sup>0</sup>	9797 49798 <sup>A0</sup>
/80	/90	/:0
a-sy -	9<<<9	9<>9A
Ksv—	9>9: >	9>>79
d+sts y ≤	8A; 89	8A-9:
U fl	89 > B	89 A; >
d sts y ≤	: A; B	: B; 7
as s s ≤	<B 7 <	=7 7; >
e ± s	8; ; ;	8; <<
ds v ±	99 9 < A	99 = 8
es - s ≤ W6 fi	97 < 7 >	97 = 7 B
d - sz -	< AB >	< B <
T fi y	97 A 9 >	98 8: <
d ± fl	8 = < 8 8	8 = > 8
d ± fl Ks s	8 > < 8 A	8 > A 8 7
as s t e t y	> < 8 >	> < A A
Ks	8 > ; A 7	8 > < >
d Psv y	8; < 8 A	8; > ; =
J s fl Mw -	8 = 8 8 8	8 = ; 9 A
Ks f s s	; A ;	; A B 8
V s y s fl s	99 B < 8	9: 9 7 7
d - s y y	8 = A 7 7	8 = B B >
jx x j... x	: < 8 >	: = B : 7 7
		8 3 < 8 3 8 8



Vn" w@n" anor yM-'' ff' ff' q anoy 944

a.zx xx o fl	f.....x .f...- - l fi p fl fi		a..x-x x f...- - ... 9 l fi Y B	
	9797 <sup>80</sup>	9798 <sup>90</sup>	9787 49797: <sup>0</sup>	9797 49798 <sup>A0</sup>
/80	/=0	/>0	/A0	/B0
a-sy -	>7	=B>	: 9=><	: 9A3-7
Ksv—	>=	><	9873 ;	9893 B
d+sts≤	<7;	<79	=>B	=>A
U fl	: 3B	: 3A	8973 7	89839
d +sts≤	87<	87>	>>B=	>B38
as≤vs≤	8=>	8=>=	8>983<	8>73B:
e ±s	: B:	: B;	B<7:	B=>:
ds v±	=B7	=B:	A<A3-9	A> 3AA
es -s≤Wb fr	<3-9	<3-A	9; >7;	9; A3>
d-sz -	83-8	83-8	88=>:	88>AB
T fsy	<3-7	<3-9	; >3;	; A3 ;
d ±fl	; 3-9	; 3-8	97; 3A:	97=>38
d ±fl Ks s	; 3A9	; 3A9	: B; ><	: BB3-8
as s t e t-y	97=	97<	>93:	> 3 8
Ks	; 3B	; 3=>	A783 >	A7<B8
d Psv sy	; 37	: 3B	8783B	87: 37:
J syfl Mw -	; 3:	; 3 9	8: 93=	8: : 3 A
Ks f s s	83:	83 9	>3A=	>>3-8
V s sy sfls	=3A	=3A	9: 73<	9: : 3<
d-sy sy	; 3-7	; 3-7	8B83-9	8B: 3=
<b>jx x j... x</b>	<b>87737</b>	<b>87737</b>	<b>8=&gt; &gt;</b>	<b>8CE3B</b>



$\frac{m}{jwx} - CAB$

c i f d n c  
 d d m m 5B9BA  
 f w x P - V w z i - j w w j - w 4A8A9

a... k	Y... a..x	Co	Y x
U c	bx 4bx i fi	f..... x b fi	p fi
/80	/90	/:0	/:0
74;	8<8;9	8; <7<	9F CAD
<4B	8>=8;	8=>=A	: A : F9
8748;	8A A8;	8A7=	: C EDD
8<48B	8B <;	8A: ; A	: D EE9
9749;	8A; =7	8=BB7	: B AB7
9<49B	8>8<	8<>8<	: 9 ED9
:74:;	8=997	8<97B	: 8 A9F
:<4: B	8: =AA	89 =<=	9C : AA
;74;;	88 B; ;	88 7A7	9: 79A
; <4; B	87 8A=	BA; <	97 7: 8
<74<	A9: 8	A=;>	8C EDE
<<4-B	=>=	>: A>	8A 8C7
=74=	<7-B	=9; >	88 : 8C
=<4-B	: <:	: AB:	E A9C
>74>	98=7	: : =A	B B9E
>2	8 <9:	: <98	B 7AA
<b>Y x p fi</b>	<b>8EB FAE</b>	<b>8E: : B9</b>	<b>: CF : 77</b>

Is s s≤6W WC Qs fia wt-aves v ±R≤w-fl 9797 979: /aw wesy szs≤ sz ≤6 ≤6The result of Interim Population Projection  
 2020–2023 (mid year/June)  
 d fl t w6d≤ tvC KadSL ad3d r z z Slu=flv z

POPULATION AND EMPLOYMENT

$\frac{m}{jwx} - \text{C7AX}$

c i S d d m  
 i f d d m  
 m 5B9BA  
 d x- f w Qw-z Uw Rwze - x  
 i xz y jw w j- w h- - y 4A8A9

a.zx xx o fl	mx y c ... n dfi	i -x f...x x U fi n	0... f...x x Y j n u	i -x c ... U fi dfi	0... c ... Y j dfi u
/80	/90	/:0	/:0	/<0	/-0
a≤s y -	8>B; 8	8<>≠	98>A	8<=>7	99B8
Ksv—	8A=7<	8=9>	9: :9	8=789	9<B:
d+sts y ≤	89>9B	87=9	97=>	87; ;7	99AB
U fl	A9B<	=A>>	8; 8A	=>≠	8< 8
d sts y ≤	9<<A	99; ;	: 8;	9999	:: =
as≤s≤	: A7; ;	:: <A	; ; B=	:: : 8	; >8:
e ±±	878<	B77=	88=B	AAB=	89>B
ds v ±	8<7<>	8: :8:	8>;	8: 9<7	8A7>
es -s≤V6 fi	8; A89	8: 7B>	8>8<	8: 787	8A79
d-sz -	; 88;	: =A=	; 9A	: =;	; A7
T fi s y	8; B87	89 B8;	8 BB=	89 >>	98: =
d ±sfl	88 A≠	87 >7B	88 <<	87 =8:	89<8
d ±sfl Ks s	89 >8B	87 A: 8	8 AAA	87 =99	97B>
as s t e t s y	<8: B	; <78	= A	; : B=	>:
Ks	89 <A=	88; 8=	88>7	88 98A	8: =A
d Psv s y	87 <≠	AB<A	8=8A	A>8:	8>A:
J s s fl Mw -	88 ≡≡	877: 9	8=9;	BB; 8	8>8<
Ks f s s	: ; >8	: 7: ;	; ; >	9BAB	; A9
V s s y s fl s	8<> B	8: 9A>	9; =9	8: 7A:	9 =
d-s s y	88; B=	BB>;	8<99	BA=9	8 =;
<b>jx x j... x</b>	<b>9B9 AFC</b>	<b>997 89B</b>	<b>: 9: D8</b>	<b>98D B77</b>	<b>: A FFC</b>

Ls s s s y ≤ v D MIK dwl w w RR9798  
 d fl t w d s ≤ tv D M s Tw w s v s s v s ≤ a w s s s s d - fl t s s s e s s ≤ f w e s y s z d w f i s r y r f l u M z f i v x z r z f i d v z v s v  
 e r r f l f f e v f k r y c v x v f l t



# PENDUDUDUK DAN KETENAGAKERJAAN

$\frac{m}{jwx} - CAD$

c d S d d  
 d f d d m  
 m 5B9BA  
 d x- Uw Qw-z Uw R- yw-e - x  
 i xz y jw w j- w h- - y 4A8A9

a.zx x x o fl	Y x a...x x j fl bfi	i -x c... U fi dfi	0... c... Y j dfi u
/80	/90	/:0	/;0
a<=>	=B	<A>	>8
Ksv—	=A7:	=7=>	>=
d+sts<=	; <77	: BBB	<78
U fl	9 AB;	9 <>	: <>
d +sts<=	B<9	A8<	8: >
as<=s<=	8; ;8<	89 AAA	8 <9>
e ±±	: >:	: 98B	<8;
ds v ±	<<<9	; AA>	=<
es -s≤V6 fi	<9>	; <78	>>
d-sz -	8 <9B	8: A;	8; <
T fi<=	<: =	; A<A	<7<
d ±fl	; 9<	: B9=	: 9A
d ±fl Ks s	; <;	: BB8	<:
as s t e t<=	8 A9A	8 =7A	997
Ks	; < B	; 8B;	: <<
d Psv <=	: >=	: 9=B	; =>
J<=sfl Mw -	; 7<8	: <AA	; =
Ks f s s	8: ;9	8 8B8	8<8
V s<= sfl s	<<A<	; <AB	BB=
d-s<= <=	; 7AA	: <9	<9=
<b>jx x j... x</b>	<b>F8 C98</b>	<b>E7 FB8</b>	<b>87 CD7</b>

Ls s s s<=vD MIK dwl w w RR9798  
 d fl t w d<= tvD M-s Tw wsv v s<=vs<=aws s s s<=d-flst s wses s<= fwevysz dVvf s kr y rflu Nz dffvxz r zafi dv zv sv  
 er rfl ffvflxry cxxvfl



**m**  
jwx - CAT

**c R e U f d**  
d x- Q R- yw-X 5B9AF 6B9BA  
j- w h- - y 4A89E 5A8A9  
-z x i xz y jw w

a.zx x x o fl	978C	978D	978E
/80	/90	/:0	/:0
a<=> -	A: A	<BB	>8
Ksv—	>9;	A>A	>8
d+sts<=	9>>	9B;	; B:
U fl	; B;	9A>	: 97
d >ts<=	8A<	B9	8; A
as<=s<=	9; :=	: <=	97<
e ±±	; 9<	: AA	: <A
ds v±	<=	<9=	<<7
es <=W6 ft	; <7	; 9>	<B:
d-sz -	8;;	8<7	8<A
T fx<=	<=	=8=	B; =
d >fl	; ; >	: 7>	-9B
d >fl Ks s	<:	A99	<B7
as s t e t<=	9: >	9<=	97>
Ks	: A=	>B9	87: 9
d Psv <=	: 7<	<A	:: B
J <=sfl Mw -	8799	: 88	; 8:
Ks f s s	8B7	8: :	B>
V s<= sfl s	<>>	88>>	<<9
d-s<= <=	=77	878>	9; <
jx x j... x	88 9DF	8: 998	88 8F9

Vn" w@n" anor y5M- " ff' ff q anoy 944k

a.zx x x o fl	978F	9797	9798
/80	/-0	/-0	/-0
a-sy -	;=8	:79	8<8
Ksv—	<B7	:<8	8>8<
d-tsts-y ≤	::;	989	8<87
U fl	9;A	979	89;>
d -ts-y ≤	B<	; >	97=
as-y-s ≤	89:A	<A;	9899
e ±s	:87	8A<	>88
ds v±	:<<	8A8	>A<
es -s≤Wb ft	:A>	8A<	88:8
d-sz -	B:	8:8	:9<
T fs-y	=B	9:8	8A89
d -sfl	<77	9<7	8>=
d -sfl Ks s	:87	8>>	88<A
as s t e t-y	89B	87>	;A:
Ks	:::	9;=	AB=
d Psv -y	;9>	97=	898=
J -sfl Mw -	97<	877	8;=
Ks f s s	<	;8	:<
V s-y sfl s	:>	:87	9;;;
d-s-y -y	8AB	8;;	8A:A
jx x j... x	D9EA	A8F9	9A CFA

Ls s s≤y≤vD MK dwl w w RR9798  
 d fl tw6d≤ tvD Ms Tw wsv v -s≤vs≤awes s s≤d-fflt s wses s≤ fweysyz6Wvf s r y rfluNz ffvxz r zfl dv zv sv  
 er rfl ffvflxry cvxvfl

$\frac{m}{jwx} - \text{C7AG}$

c R d U f c  
 d d d d m m 5  
**B9BA**  
 d x- S-w R- yw-X -zx i- wzi xz y  
 jw w j- w h- - y 4A8A9

a.zx xx o fl	Y... a..x ω bx 4bx i fi	f..... x b fi	Y x p fi
/80	/90	/:0	/:0
a↔s	BB	8	8C7
Ksv—	87>	≠	8E:
d†sts	≤	≤	F9
U fl	<	:7	EA
d †sts	≤	8>	: 97
as↔s	≤	98>	: AD
e ±±	≠A	9<	F:
ds v±	898	≤	8DD
es -s≤Wb fi	→B	; <	89A
d-sz -	99	8=	: E
T fi	↔	A:	; 9
d †fl	→	;	87E
d †fl Ks s	→	; 9	889
as s † e t	↔	8=	: B
Ks	A;	; >	8: 8
d Psv	⇒	;;	888
J↔sfl Mw -	<A	9B	ED
Ks f s s	9=	89	: E
V s↔ sfl s	A7	: 9	889
d-s	↔	9;	FA
<b>j x x j... x</b>	<b>8 AD8</b>	<b>E77</b>	<b>99D8</b>

Ls s s s s s vD MIK dwfl w RR9798  
 d flt w b d s tvD M s Tw ves v s s v s s a w e s s s s d - fl t s s w e s s s f e w s y s z G N v f i s r y r f l u n z z f i v x z r z e f i d v z v s v  
 er r f l f f e v f l x r y c v x v f i t

POPULATION AND EMPLOYMENT

**C7B** dVnVgRYRdVkcRRg  
Tc f be oc Tdj

$\frac{m}{jvx} - C7A$  c i S AEm d f  
c d l l e c  
d d m m 5B9BA  
f w 9Do-w P -w z e - x j - Py  
S -f - m-- w z i- jw w j- w  
h- - y 4A8A9

a...x x k x x i fi U	Y... a..x ω bx 4bx i fi	f..... x b fi	Y x p fi
/80	/90	/:0	/:0
J sy s s ≤ Tw.s. α s i s i z r f f i K t z v	87 > 9: .:	B: A =	978 7FC
K w v s. s h ≤ f z i x	877 = 9;	A < B7 =	8EC B: 7
aw s y s y s s e w t s 6 f f i v i f f e f i v i	= 7B	> B <	8A BCC
K s < j sy s s ≤ Tw.s. α s i s i z r f f i s i r t z v	9 = ; 9 >	; 7 ; ; 9	CC EBF
<b>Y x p fi</b>	<b>8: : CC7</b>	<b>8: A 9FB</b>	<b>9CD FBB</b>

d fl t w 6 d s tvC Kad3d w j sy s s ≤ Tw.s.V6 - s fi/ds s w s 0j y 6L ad3d r z z s i u s i v z 2K x Yr z s i r f f i r s s ≤ P ≤ tv d v



B:

an n" ffjvar " tnu \_rtr" p v P t f f i r. ° 9799

$\frac{m}{jwx -}$  CBB

i S AE m R f i  
 m U c d l  
 l e d m m 5B9BA  
 f w 9Do-w P -w z e - x Tz yw w  
 P w - w z j - Py S -f - m--  
 jw w j- w h- - y 4A8A9

	N x x a...x6a	fi U		
f...- x j... x R x x x <sup>8</sup> a fi fi U fi <sup>E</sup>	0...x s	f... x q	x <sup>9</sup> F	f..... x .0....x ...x-x N x x a...x l fi a fi U
/80	/90	/: 0	/A0	/B0
7	↗ A ↖	8 AB;	D9 DAA	B↗ 7
8	: => 8	9 A; :	: F BCA	B9A8
9	<A: >	A 779	CC : D9	A>B;
:	97 <AB	8 A9>	99 ABC	B8A<
Y x 6p fi	8EC B: 7	8A BCC	978 7FC	F9DC

Vn" w@n" anor y5M- " ff' ffr q anoy 948

f...- x j... x R x x x 8 a fi fi U fi E	O x N x x a...x j a fi U	Y x p fi	f..... x .N x x a...x ...x-x f...- - k x a...x l fi a fi U s U l fi
/80	/C0	/D0	/E0
7	98.97=	F: FB7	55
8	9; >>8	CA: A:	55
9	8>777	E: :D9	55
:	: A>	9C 9F7	55
Y x 6p fi	CC EBF	9CDFBB	55

Ls s s6y-vC 8 75 dwt- f5z M6 s /dM06 a zlr dty<ffi  
85 dwt- f5z V wesey-sz aw sfl s6t flz≤ Rzxy dty<ffi  
95 dwt- f5z V wesey-sz J s 6dvlz≤ Rzxy dty<ffi  
: 5awy s≤e-sy-6M6ffix v

9 85V wesv - wev s s6y<fflix v≤ ff  
95V wfl w s 5s ≤ s2s60 r sffiyzlx r flv s zlv 5 fi  
: 5V ws s -vs±fl sy±≤fl wesv s wev s s6R≤ vffl sws  
; 5d vsz ≤ s wev s s6 ws -tvfl fl fl fs-t wev s6Rr vr -s zlv v r

d fl t w6d≤ tvC Kad3d w-J sy±s s≤T w.s.V6 -s sfl/ds±w s OJy 6Lad3d r z z fl u s flv z r 2K x Yr z s fl r ffr s s ≤ P≤ tv d v



$\frac{m}{j_{wx} - CBZ}$

i S AE m d R S  
 l l e f l i  
 n c d d m m 5  
**B9BA**  
 f w 9D o-w P -w z e - m -z S  
 j -f - m-- x c w T - i w w z i-  
 j w w j- w h- - y 4A8A9

$i x f \dots x x k x x$ $i f i a o f i$	$Y \dots a \dots x \omega$ $b x 4 b x$ $i f i$	$f \dots x$ $b f i$	$Y x$ $p f i$
/80	/90	/:0	/:0
Kw szs dwev— Z flKtt≤ fl h ≤ffv	8B: B8	9: 8>	A9 BCA
Kw szs Mts≤ K z e-vs±ews 6K z e-vs±Mts s Ofi ffv K z vus evfi ≤r h ≤ffv 5f fl rzu h ≤ffv	8<B⇒	8B; B7	: B ABD
Kw szs Mts≤ K z ews 6K z Mts s Ofi ffv K z vus av fi rfi vfl h ≤ffv	: : 7:	A8>	A 897
K z 6Ts s s≤awys s— h ≤ffv	:: B<	8><A8	B9 BAC
awv s. Kvt s v-aw s s s s M r f i m ≤ f f v 5 l K x z f f i v	87 87B	; ; <=	8A BCB
awv s. Kvt s v-W ≤aw s s s s M r f i m ≤ f f v fl ≤ z l K x z f f i v	; <99	A: A	B: C7
awv s. T v i s y s 6awv s. s ± M t s s P r f i z f i h ≤ f f v 5 f f l r z u h ≤ f f v	89: ⇒	8B <8	: 8 F8E
<b>Y x p f i</b>	<b>877 C9A</b>	<b>EBF7C</b>	<b>8EC B: 7</b>

d fl t w 6 d ≤ t v C Kad B d w j s y z s ≤ T w s. V 6 - s f i / d s ± w s O J y G l a d 3 d r z z z f l u s l v z 2 K x Y r z s l r f f i r s ≤ P ≤ t v d v

POPULATION AND EMPLOYMENT

$\frac{m}{jwx} - CBD$

il S AEm d R S  
 ic d d m m n  
 f w 9Do-w P -w ze - m m -z S  
 -f - m-- x P -V w zi- jw w j- w  
 h- - y 4A8A8

a... k	Y... a..x	ω	Y x
U c	bx 4x i fi	f..... x b fi	p fi
/80	/90	/:0	/:0
8<48B	>=A<	: B; =	88 C: 8
97 49;	A9==	>=9B	8B EFB
9<49B	89 98:	A >B;	98 77D
: 7 4:;	88 A98	A <<	97 : DE
: <4: B	88 7; =	A; 98	8F ACD
; 7 4:;	B >89	A A99	8E B: A
; <4: B	A9; =	A BB>	8D 9A:
<7 4 <	>7>B	A <A	8B CBD
<<4-B	; B: B	>7A;	89 79:
=72	A <:	87 AA9	8F A8B
Y x φ fi	EF BA7	E8 D87	8D8 9B7

d fl tw6d≤ tvC Kad3d wJ syb s≤Tw.s.W6 -sfi/ds±w≤ OJy 6Lad3d r z z 9lu≤lv x 2K x Yr zslr ffr s≤ P≤tv d v

$\frac{m}{jwx - CBE}$

i S AE m d R S  
 l l e f e  
 i n c d d  
 m m 5B9BA  
 f w 9D0-w P -w z e - m -z S  
 j -f - m-- x c w Xz w z i- jw w  
 j- w h- - y 4A8A9

$\frac{bx \ x \ f \dots xx \ k \ x \ x}{i \ f \ i \ e}$	$\frac{Y \dots a \dots x \ \omega}{bx \ 4bx \ i \ f \ i}$	$\frac{f \dots x}{b \ f \ i}$	$\frac{Y \ x}{p \ f \ i}$
/80	/90	/:0	/:0
$\frac{aw \ s \leq s \leq}{Kx \ z \ f \ f \ i \ v}$	$\ll; \cdot B$	$;; \geq <$	FF 8FA
$\frac{V \ s \leq x \pm}{Wr \ f \ l \ w \ t \ v}$	88 <88	>78B	8EB: 7
$\frac{S \ s}{dv \ z \ v}$	:: $\approx$	: <8-9	CE E7C
<b>Y x <math>\phi</math> fi</b>	<b>877 C9A</b>	<b>EBF7C</b>	<b>8EC B: 7</b>

d fl t w6d≤ tvC Kad3d w-l >y> s≤Tw.s.W6 -sfi/ds±w≤ 0J y 6Lad3d r z z 9lu<lv x2K x Yr z<lr ffr s≤ P≤tv d v

<https://lap.militengakab.bps.go.id>

POPULATION AND EMPLOYMENT

$\frac{m}{jwx} - CBF$

i S AE m d R e f  
 d n l l e  
 d m m 5B9AF 6B9BA  
 f w 9D0-w P -w z e - x c w Py  
 S -f - m-- jw w j- w h- - y 4A89E  
 5A8A9

a...x x k x x i fi U	978C	jx ω fi 978D	978E
/80	/90	/:0	/;0
J > s ≤ T w s. α < α < i z r f f i K t z v	55	8 < 7; ;	8 > BAA
K w s. s. h ≤ f f i x	55	8; < ; ;	8 < > 78
aw s y s y s ≤ e w t s & f l v i f e f i v i	55	88 = 7B	88 9A >
K s < j > s ≤ T w s. α < α < i z r f f i s i r t z v	55	> 9 < =	< =
Y x φ fi	55	99F DFF	9: A CBA



Vn" w@n" anor yBM- " ff' ffr q anoy 984

a...x x k x x i fi U	978F	9797	9798
/80	/<0	/=0	/>0
J sy s s≤Tw s. Q s i s i z r f f i K t z v	8>8; >7	8A<98A	978 7B=
Kw±w s.Gh ≤ffzfx	8-B79:	8>8 9<7	8A=< 7
awesysy s≤ewt s 6 f flvfi ff fi vfi	89;; >	8: B=A	8; <=<
K s s≤J sy s s≤Tw s. Q s i s i z r f f i s i r t z v	=A: A;	>>BA;	=A-B
<b>Y x q fi</b>	<b>9: F EBA</b>	<b>9C8 979</b>	<b>9CD FBB</b>

Ls s s≤6y≤vC M s s sz ≤978= +s±w vw=6867=ur r z fl≤r r f f s f i  
 M s s sz ≤978A 49797 V wesj s s s≤vs s K s u s s s y d f a j d 978-6867B 38686 ur r f z i x 867; d f a k d L r t f f r z i x  
 d f i t w 6 d ≤ t v C K a d 3 d w J s y s s≤T w s. W 6 - s f i / d s ± w s O j y 6 L a d 3 d r z z s i l u s i v x 2 K x Y r z s i r f f i r s ≤ P ≤ t v d v

POPULATION AND EMPLOYMENT

$\frac{m}{jwx} - CB7G$

m i m 1m1 m2 m  
 i R d 1m1 Rd2d m  
 m i l n 5B9AE B9BA  
 k - - hw - Ok h1w z bwx U y-fw y w  
 hw - ObUf h1 jw w j- w h- - y w z i w- w  
 k w wf y-4A89D5A8A9

pfi u fi	j f j q n			j f Na ch b l n		
	j x x	j ... x	i x ... k x x	j x x	j ... x	i x ... k x x
/80	/90		/:0	/:0		/<0
978<	;BA		⇒8	<B;		⇒BA
978=	SS		SS	SS		SS
978>	>B		<7	=A3;		=A3A
978A	⇒9		<3<<	<3=<		>8B>
978B	>BB		<3 B	>83>		>73 >
9797	>7<		⇒B8	>7B8		=A3⇒
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Ls s s ≤ 67 ≤ vC Ms s sz ≤ 978= v s ± w vw = 6867 = ur r z fl ≤ r r f f s f f i  
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**BAB**  
Chapter

**04**

# **SOSIAL DAN KESEJAHTERAAN RAKYAT**

*Social and Welfare*

<https://tapanulitengahkab.bps.go.id>





<https://tapanulitengahkab.bps.go.id>

**i Vg cVeRI Rg mVdgB**

**j TRWdXPb de j Ti**

74 avqnx5ory z • r..nu °rx-ynu nqny nu z r.rxn n"t @qnx • r..nu n@ oryz • r..nu @.qns@..qn" @qnx • r..nu n@ oryz • r..nu nx@s z r"tw @ • r"qvqxn" qv ° n© w" w"t • r"qvqxn" s-z.ny ar.z.n° x wtn n"t @nz n©oryz @nz n© @nz n" xn" nx3xn" nx @ @. v @qnx z ry n" w@n" xr °rx-ynu qn°n.4.

84 Wn°w or:°rx-ynu nqny nu z r.rxn n"t @.qns@..qn" nx@s z r"tw @.r"qvqxn" s-z.nyqn" " -" s-z.ny.[nrx©J2K2n@ L/2 onx•r"qvqxn" qn°n.2z r"r"tnu zn • " • r"qvqxn" @ttv4Kntv znun°v n n"t °rqn"t p @ qn"ttn• zn°w or:°rx-ynu4

94 avqnx or:°rx-ynu yntv nqny nu z r.rxn n"t • r..nu @.qns@... qn" nx@s z r"tw @.r"qvqxn" qv ° n© w" w"t • r"qvqxn" s-z.ny qn" " -" s-z.ny.[nrx©J2K2n@ L/2@ @. v • nqn °nn©.r"pnpu n" @qnx yntv @.qns@...qn" @qnx nx@s z r"tw @ • r"qvqxn" 4

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85 X-fb"r r... nfff"qv't °pu--y v °-z r--"r u- un° "r r...nfff"qrq -... "r r...orr" .rtvff.rq v' n s-z.nyrqffpnff-"3ffpu n° • .v n..3 °rp-"qn..3n"q ff.ffn...rqffpnff-"5 au-°r u- vfff p-z • yffq xv'qr.t.n.ff" n.r. p-"°vr.rq n° "r r... nfff"qrq °pu--y5

95 Kfff"qv't °pu--yv° °-z r--"r u- v pffi.r."ff nfff"qv't • .v n..3 °rp-"qn..3 -...ff.ffn...rqffpnff-"3 v'pyffqv't • npxntr K3 • npxntr L3-... npxntr M5 M-ytr °fffqr"ff u- • -°ff--"r° uv'aur...fffq v' p-"°vr.rq n° nfff"qv't °pu--y5

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; 5 M-z • yffq • n.ffpfn... y ry -s rqffpnff-" v' °-z r--"r u- un° p-z • yffq • n.ffpfn... y ry -s rqffpnff-" v' • .v.nff -... • ffoyp °pu--yn"q nppr ff"t t.nqffnff-" pr.ffs p nff5 ' -z r--"r u- un° "r r... nfff"qrq ffur utur°ff t.nqr offff • n°°rq ffur sv'nyr nz v' p-"°vr.rq n° p-z • yffq

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n"q S'ynz v@ Qrz r"ff... 'pu--y  
 -...-ffir...r"ffvny"ff s-.z.° n"q  
 Tffv... Rvt u 'pu--y n"q Wa°3  
 -... -ffir... r"ffvny"ff s-.z.°5  
 o5 aur 'rp-"qn... Qaffpnff-"  
 p-"vff -s ffir °r"v...vut u °pu--y  
 WK3 c-pnff-ny 'pu--y n"q  
 c-pnff-ny Wnq.n°nu Ky nu3  
 -... -ffir... r"ffvny"ff s-.z.°5  
 p5 aur Rvt u Qaffpnff- p-"vff  
 -s ffir rqffpnff- y ry nsff...ffir  
 °rp-"qn... rqffpnff- funffp-"vff  
 -s qv y-z n°3 onpury-.3. z n°ff.3.  
 °.rpnv°fbn" qq-pff.nyqrr.r° funff  
 n.r.uryq o ffir p-yrtr5aur p-yrtr°  
 pn" or npnqrz 3° -y ffpu"v3vut u  
 °pu--y v°°fffff3 -... ffr.vr.:vff5

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 °r"qvqxn" @.@° n"t  
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 °r"qvqxn" n"t °r° nv  
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 n" -sspnyntr t.:ffv v' n tvr"  
 y ry -s rqffpnff- ff °-° ffrnff-"  
 s...ffir °nz r -sspnyntr t.:ffv

APM SD/MI/ndersajat	=	JM SD/MI/ndersajat usia 7-12 tahun	× 100%
		JP 7-12 tahun	
APM SMP/MTs/ndersajat	=	JM SMP/MTs/ndersajat usia 13-15 tahun	× 100%
		JP 13-15 tahun	
APM SMA/MA/ndersajat	=	JM SMA/MA/ndersajat usia 16-18 tahun	× 100%
		JP 16-18 tahun	

NIE in primary school	=	NS in primary school aged 7-12 tahun	× 100%
		NP aged 7-12 tahun	
NIE in lower secondary school	=	NS in primary school aged 13-15 tahun	× 100%
		NP aged 13-15 tahun	
NIE in upper secondary school	=	NS in primary school aged 16-18 tahun	× 100%
		NP aged 16-18 tahun	

Ur@.n"t n"C

J[WF J"txn [n.@v n°v W .:v  
TW F T z ynu z .xq .nqn  
° n© w" w"t .r" qvqxn"  
.nqn .r.v:qr @.@"©  
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xry-z .-x z ... @.@"©  
.nqn .r.v:qr @.@"© 4

764 J"txn [n.@v n°v Un°n...J[U/  
nqnyu .:v .:v .r" q q x  
n"t z n°w or.:rx-y nu .nqn  
° n© w" w"t .r" qvqxn"  
@.@"© @.unqn. wz ynu  
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n"t °r° nv qr"tn" w" w"t  
.r" qvqxn" @.:ro @

$$\text{APK SD/MI/uderajat} = \frac{\text{JM SD/MI/uderajat}}{\text{JP 7-12 tahun}} \times 100\%$$

$$\text{APK SMP/MTs/uderajat} = \frac{\text{JM SMP/MTs/uderajat}}{\text{JP 13-15 tahun}} \times 100\%$$

$$\text{APK SMA/MA/uderajat} = \frac{\text{JM SMA/MA/uderajat}}{\text{JP 16-18 tahun}} \times 100\%$$

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z r" r yr " t t n .n x n"  
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X-ff°D

XQ\_G Xrff O'.:yz r"ff \_nff  
X' G Xffz or... -s °ffqr" ff6  
.ff v' v' n °.rpsv yr ry -s  
rqffpnff-" -" ffr pr.ffv' .r.v:q  
X[G Xffz or...-s .-° ffynff-" v' n  
°.rpsv nt r t .:ff -" ffr yr ry-s  
rqffpnff-" -" ffr pr.ffv' .r.v:q5

875 Q.:° O'.:yz r"ff \_nff- /QQ\_0 v'  
n .:v .:v .ff-" -s °ffqr" ff6 ff v'  
v' n tvr" yr ry -s rqffpnff-" ff  
. -° ffynff-" v' n -ssvnynt r t .:ff  
v' ffr °nz r tvr" yr ry-srqffpnff-" 5

$$\text{GER in primary school} = \frac{\text{NS in primary school}}{\text{NP aged 7-12 tahun}} \times 100\%$$

$$\text{GER in lower secondary school} = \frac{\text{NS in primary school}}{\text{NP aged 13-15 tahun}} \times 100\%$$

$$\text{GER in upper secondary school} = \frac{\text{NS in primary school}}{\text{NP aged 16-18 tahun}} \times 100\%$$

X-ff°D

QQ\_ G Q.:° O'.:yz r"ff \_nff  
X' G Xffz or... -s °ffqr" ff6  
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°.rpsv nt r t .:ff -" ffr yr ry-s  
rqffpnff-" -" ffr pr.ffv' .r.v:q5

885 Rv ur.Qqffpnff-" v'rqffpnff-" nyffl vf  
ffunff -.t.n"vr° ut ur...rqffpnff-" 5

784 [r.t. ...n" aVttv Xrtr.v.nqnyu  
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895 [ffoyx Rvur... Qqffpnff-" v  
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8=5 Lvfu nfff"qn"ff v° °-z r-"r  
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7=4 M-x@... • r"-y"t • .-r°  
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 ny n.rn° n"q ff.r° -s qvrrn°r°5

\_ z nu 'nxv© xu ° ° nqnyu  
 ..z nu °nxv© n"t z rz or.ºn"  
 .ryn n"n" @z n .nqn °n©  
 ovqn"t n@ °n© w"v .r" nxv©  
 @.@°© or.qn°n.xn" qv v y°  
 vž 2t-y-"tn" z .2-.tn"2w"v°  
 .r" nxv@xn xrxu ° °n" yn" n4

' .r°vnyrq R-° vfhy v n u-° vfhy  
 funff .:.. vq° .v n... pn.r. v°  
 -"r n.rn -...- "r .n.fppfn...ff.r  
 -s qvrrn°r on°rq -" qv v y°r3  
 ntr t.:ff3 -.tn"3 ff.r -s  
 qvrrn°r3 -... -fur... °r.pspvff5

864 \_ z nu Kr.:nyŵ nqnynu  
 °n.n"n •ryn n"n" xr°run@  
 qr"tn" vŵ °ront nv ..z nu  
 or.:nyŵ 2 qw"txn.v •ryn n"n"  
 •rz r.ŵnn" xrunz vñ"2  
 •r.:nyŵ n" °r.@ •rz r.ŵnn"  
 vø qn" n"nx n"t or.nqn qv  
 on nu•r"tn n°n ovqn" °r"v.4.

\_ z nu Kr.:nyŵ nqnynu  
 °n.n"n •ryn n"n" xr°run@  
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 or.:nyŵ 2 qw"txn.v •ryn n"n"  
 •rz r.ŵnn" xrunz vñ"2  
 •r.:nyŵ n"2 °r.@ •rz r.ŵnn"  
 vø qn" n"nx n"t or.nqn qv  
 on nu•r"tn n°n ovqn" °r"v.4.

874 Uyŵ w [.n@z n nqnynu °n.n"n  
 xr°run@ n"t qv nxnv "©x  
 •ryn n"n" or.:on@wñ"2ovn°n" n  
 or.nqn qv on nu •r"tn n°n"  
 q-x@.5@ nt n z r qŵ4

884 [ °xr°z n° .[ °n© Ur°run@  
 Wn° n.nxn@ nqnynu "v©  
 •rynx°n"n @x"ŵ qŵn°  
 xr°run@ xno •n@"5x-@  
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 •°xr°z n° z nx°v ny nqnynu  
 °n© xrpnz n@ qn" "©x qn•n©  
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 "v©[ °xr°z n° Uryŵ t .[ °xry2  
 qn" "v© ovqn" qr°n5x-z "v©

975 Wnff.:ŵff R-°vfyv n °rpnvyr q  
 u-°vfy s-... puyqov.fu3 un°  
 °rpnvŵff v°r.pff-°r...ŵpr  
 ff •.rt"n"p3 puyqov.fu3  
 u-°vfy nff-°n"q -ffff nffr"ffs-...  
 z -ffr.:°n"q puyq.r." funffv fff qr...  
 ffr °ffr...ŵv-°-sn" -o"ff ffpvñ"5

Wnff.:ŵff R-ffr v urnyfu pn.r.  
 snpyff vñ nypr"°r n°nz nff.:ŵff  
 u-ffr3r"ffr•rq vñ•.r."nffhpn.r3  
 puyqov.fu3 n"q r nz v nffr-°s  
 z -ffr.:°n"q puyq.r." vpu v fff qr...  
 ffr °ffr...ŵv-°-sn°r"v-z vq ŵr5

985 [.v n... Myŵ v v n urnyfu snpyff  
 v vpu ff trff -ffff nffr"ff  
 °r...ŵpr3 fff fny fff qr..fūr p-°ff-y  
 -s q-pff.6z r qvny •r.:°-"ryb

995 [ ffoyp Rrnyfu M"ffr. v ffpu"vny  
 v •yz r"fffr-°ff vff -s .rtr"p  
 urnyfu qr.n.fē r"ff funff un r  
 fūr •.v n... sff pff-°n° n sv:ff  
 yr ry urnyfu pn.r. •.v. vq.r.5 aur  
 -xŵt n.rn °ff"qn.q -s •ffoyp  
 urnyfu M"ffr.v -"r qvffpffn"q ff  
 .rnpu fūr.v... -xŵt n.rn°3 •ffoyp  
 urnyfu pr"ff.:. un r n °r...ŵpr  
 "rff -x. p- r.ŵt °ff°vqn... -s  
 •ffoyp urnyfu pr"ff.3z -ovr •ffoyp  
 urnyfu M"ffr. fff vff3n"q z vq ŵr  
 fff vff /\_rt ffjnf-°-s fūr Wŵ vff...s  
 Rrnyfu -sS'q-"r°vXffz or.A<frn...  
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894 [-yxy' x nqnyu °n.n" n  
 xr°run@ n"t qv nxnv "©x  
 •ryn n"n or.:-on@wyn" 2ovn" n  
 or.nqn qv on nu •r"tn n°n"  
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8: 4 J•-@x nqnyu ° n© @z • n©  
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 •r"wnyn" -on© n@ onun"  
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8; 4 Š "v°v nqnyu ° n©  
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 °nxv@n@ un" nz r"tnynz v°nxv©  
 .v'tn"4 b"©x v "v°v qn°n...  
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 qn.v.8: vmz qvor.vxn" v "v°v  
 Rr•n@@ K .RK36/2 °n 7 .n©/  
 o yn" qvor.vxn" KLP qn" [-y-  
 72 °n 8 .q n/ o yn" qvor.vxn"

9: 5 [-y py' v v° n urnyfu snpyff v'  
 u y u ff trff-ffff nffr"ff°r...pr°3  
 fffffny fffqr... fūr p-"ff-y -s  
 q-pff.6z r q pny •r.:-"ryš

9; 5 [un.z.np v° n °.rpsv° ynpr funff  
 v° fffr q s-...•un.z.npr fffipny wo°3  
 n"q qv'ffvofff-"6ny -s q.ftt°6  
 •un.z.npr fffipny° n"q -fūr...  
 z r q pny°ff•yr°ff•r-•y funffn.r.  
 nqz v°v'ff.rqo ffnv'rq•un.z.npv'ff  
 /\_rt ffinff-" -s fūr Wv°vff...-s  
 Rrnyfu -s S'q-"r°vn Xffz or..8: : 9  
 frn..9779 no-ffff fūr Mun"tr° -s  
 \_rt ffinff-" -sfūr Wv°vff...s Rrnyfu  
 -s S'q-"r°vn Xffz or..C996WNUXUO 6  
 [Q\_6e68CC: no-ffff [.4 v°v- n"q  
 [.-pr qffir.° s-... Kqz v°v'ffnffr"  
 -s Vpr"°r q [un.z.npr°0š

9<5 Š z fffv nffr-" v° n" nfffz •ff ff  
 npffr y .nv'v'p.rn°r n •r.:-"°  
 v z fff vff ff- n qv'rn°r °- funff v  
 -"r qn fūr r •-°r ff fūr qv'rn°r  
 vff wy"-ffuffff-...-"y r •r.v."pr  
 z vq •nv'5 P-...p-z•y'ff on°v  
 v z fffv nffr-"3 v°sn"ff ntr q y°°  
 fun" 9; u-ff:°.n.r.tvr" ur•nffff  
 L /RL470 v z fffv nffr-"3 ntr 8  
 /-"r0z -"ffu tvr" LMQ n"q [-y-  
 83 ntr 9 /ff -0z -"ffu° n.r.tvr"  
 /N[ aRL4Rv 8 n"q [-y- 9 Bntr  
 : /ffu.r0z -"ffu° n.r.tvr" /N[ a4  
 RL4Rv 9 n"q [-y- : Bntr ; /s-ffu0.

.M[ a3Rk3Rvo 7 qn" [-y- 8/2 °vn  
 9 .@t n/ o yn" qvor.wxn" .M[ a3Rk3  
 Rvo 8 qn" [-y- 9/2 °vn: .rz .n@  
 o yn" qvor.wxn" .M[ a3Rk3Rvo 92  
 [-y- :2qn" § c n@ [-y- ° " @x/2  
 qn" °vn B .°rz ovy"/ o yn"  
 qvor.wxn" .Lnz .nx n@ W/\_  
 .[r.n@.n" Wr" @.v. Ur°run@  
 X-z ...78 anu " 867= @ " @t  
 [r" ry" ttn.nn" § " vnoV4

z -"ffu° v° tvr" /N[ aRL4Rvo :3  
 [-y- ; 3n" q § c -. [-y- v° wppff- " @  
 n" q ntr C / " v° r0 z -"ffu° tvr"  
 /Wrn°y° -.W\_0/\_rt ffynff- " -sffir  
 Wv° vff...-s Rrnyffu -s S°q-"r°vn  
 Xffz or..89 frn..978A no-ffffaur  
 § .yz r" fhff- " -s § z fff vnf- " @

8<4 KLP .Lnpyyff Mhyz rfff Qffr.v°/  
 z r...• nxn" nx°v° n°v " © x  
 z r" prt nu • r" nx@ aKL2  
 qvor.wxn" • nqn on v on... ynuv..  
 n@ n" nx2 qr" t n" ° " @xn"  
 • nqn x y@ • n" t xny y" t n" n@°4  
 Krxn° ° " @xn" xrz qn" nxn"  
 z rz or" © x @ " w yn" xr py  
 w.v° t n" • n...© nqn x y@ y" t n"  
 n@°4 ' " @xn" KLP qvor.wxn"  
 xr • nqn n" nx °ron" nx 7 xny4

9=5 LMQ /Lnpyyff Mhyz rfff Qffr.v° 0 v°  
 n nppv° r ff • .r. r" ffaLM qv°rn°r3  
 tvr" ff " r o-°.° -..puyq.r." 3o  
 v° wppff- " nfffir on°r -s ffir °xv° -s  
 ffir ffi • r..n.z. 5 S' wppff- " °vff wy  
 s-z. yffir offz • ° -s °pn...ff°ffr  
 v° ffir °xv° -s ffir ffi • r..n.z. 5LMQ  
 v° wppff- " ° tvr" ff puyq.r." 8 ffz r°5

8=4 M[ a .Ms@.v [r.©°v2 ar@n" °/  
 z r...• nxn" nx°v° " © x  
 z r" prt nu • r" nx@ Ms@.v  
 [r.©°v2 qn" ar@n" ° n" t  
 qvor.wxn" • nqn on v or...z ...  
 9 o yn" xr n@°2 qr" t n"  
 ° " @xn" • nqn • nun2 qv yn" t 7  
 o yn" qn" 8 o yn" xrz qn" 2  
 °ruv° ttn ° " @xn" v " vnoV  
 M[ a y" t xn• • nqn ony@  
 or.wz ynu 9 xnyw .xnqn" t3  
 xnqn" t °ryn" t nx@ n" @...  
 ° " @xn" o v n yow qn.v.7 o yn" /4

9A5 N[ a /Nv uffir.v3 [r.fff°v3  
 arffi" ffi0v° n nppv° r ff • .r. r" fffir  
 qv uffir.v3 • r.fff°v3 n" q ff ffi" ffi  
 qv°rn°r3 tvr" ff v° sn" ff ntrq :  
 z -"ffu° n" qno- r3 v° fun°u-ffv° ffir  
 ffut u3.r. rnff q-" rz -"ffu° n" q ff -  
 z -"ffu° ynf.3- funfffir p-z • yff  
 N[ a v z ffi vnf- " °u-ff nffff-qy...  
 ff-fhy° t : ffz r° °-z r ffz r° ffir  
 ffz r v° ff..ny orff rr" v° wppff- " °  
 pn" or z -.r. fun" 8 z -"ffu° @

8A4 Ury un" xr°run@n" nqnyu  
 xrnqnn" °r°r-.n" t n" t  
 z r" tnyz vt n" tt n" xr°run@n"

9B5 Rrnyffu p-z • yn°v° v° n °ffff -s  
 °-z r-"r u- v° r • r.v." pv° t  
 urnyffu -...° ° pvnffv° qv°-qr.:3

n@ xrw nn"2 onx xn.r."n  
 tn"tt n"5.r" nxv@ n"t °r.v.t  
 qvnyz v.r"q q x °r.r.@.n"n°2  
 • yrx2qvn.r2. °vt2°nxv@xr.nyn2  
 zn • " xn.r."n r" nxv@ nx @  
 • r" nxv@ x.:"v .z r°xv "  
 °rynz n °ro yn" @.nxuv...@qnx  
 z rz • " nvxry un" /2xr prynxn" 2  
 x.v v ny@°2n@ xry un" yv" n4

r v fur ..orpnffr -s qv°.qr.6qv rn°r°  
 funff n.r. -sff" r r.v."prq o  
 • r-°y °ffpu n° urnf8p-yq3qvn..urn3  
 qv v r°°3 urnqnpur3 -...orpnffr  
 -s n pffff yv"r°°3 pu.:"vp qv rn°r  
 /nyfu-ffu qffiv.t fur • n°ffz -" fu qv  
 "-ffun r n" p-z • ynv ff @nppqr" f8  
 p.v v nyff3 -...-fur...p-z • ynv ff5

8B4 Wr"t-on@°r" qv.v.nqnyu • n n  
 n"tt-@ ..z nu @n"tt n "°x  
 z r y n x xn" • r"t-on@n" qr"tn"  
 z r"r"°xn" w"v -on@°r" qv.v.  
 @n" n °n.n" 5.r.r° qn.v. @n" nt n  
 xr°run@n" 5-on@nqv v-" ny.on@n/4

9C5 'rys ffr.nffz r"ff v °rys pffiy -...  
 un v t z r qv v r vfu-ffff n"  
 • .r.°p.v.ffz-"° s.-z n urnyfu -..xr...  
 /q-pff.3. "ff:r3 • n.nz r qv p3 r ff05

964 Tnz v n" xr°run@n" nqnyu  
 • .:t.nz on"°n" °-°vny "°x  
 • r y n n"n" xr°run@n" 4Wr" ...@bb  
 X-4: 6anu " 866: @n"t' v°z  
 Tnz v n" ' -°vnyXn°v-" n2vz v n"  
 xr°run@n" qvry"ttn.nxn"  
 qr"tn" °wn" z r" v z v nt n...  
 • r°r.@ z rz • r.:"y u z n" snn@  
 • rz r y un.nn" xr°run@n" qn"  
 • r.y q "tn" qnyz z rz r" uv  
 xro °un" qn°n... xr°run@n" 4

: 75 Rrnyfu v °ffin"pr v n °-pny  
 n°vffn"pr • .:t.nz s-..ffur urnyfu  
 °r...pr 5Kpp-.qv t ff yn X-5; 7-s  
 977; -" fur "nffz"ny°-pny°r pffivf  
 ° ffz 3 urnyfu v °ffin"pr n°  
 -.t.n" v r q vfu fur n z -sr"°ffiv.t  
 funff n.fpv n" ff.r.pv r fur or" r sff  
 -s urnyfu pn.r. n"q • .:ff pffz"  
 ff z r r ff on°p urnyfu "rrq°5

974 K[T Ur°run@n" nqnyu ont v n"  
 qn.v. ' v°z Tnz v n" ' -°vny  
 Xn°v-" ny.' T X/ n"t or.°wn"  
 "°x z rz r" uv xro °un"  
 qn°n... xr°run@n" z n° n.nxn@  
 n"t yn nx n"t qor.vxn"  
 xr.nqn °r@n. -n"t n"t @ynu  
 z rz on n...v.n" n@ v .n" n  
 qon n...-y u [rz r.v. @u4 K[T  
 Ur°run@n" @.ant v z r" vqv K[T  
 [r"r.v n Kn"°n" S.n" .[KS

: 85 L[T Rrnyfu S'°ffin"pr v n • n.ff-s  
 fur "nffz"ny°-pny°r pffivf ° ffz  
 upu n z °ffz r r r fffur qrpr" ffon°p  
 urnyfu "rrq° s-...-pr ff v t v r" ff  
 r r...r.:" u-un° n v q qff° -...  
 u-°r p-"ffvffz-"°n.r.nvqo fur  
 Q- r.:"z r" f5L[T Rrnyfu S'°ffin"pr  
 v qv v r q v ff L[T S'°ffin"pr s-...  
 • ---.n"q "rn.s---.L[LSn"q X-" 4  
 [LS L[T 5 [LS L[T • n.fpv n" ff  
 n.r. • ---.n"q "rn...• ---.r-°y

qn" K[T X-" [KS[r°r. @ K[T  
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 ' rz r" @.n v° • r°r. @ K[T  
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u-°r p-" ffvoffff-" ° n.r. • nvq  
 o ffr t- r. "z r" ff Wrn" uv  
 X-" [LS L[T • n. ffr n" ff • n  
 p-" ffvoffff-" ° v qr• r" qr" ff 5  
 S' pyffq v t X-" [LSL[T • n. ffr n" ff  
 "nz ry pv yz wff.. 6 -ypr 5

984 Tnz xr°qn nqny nu • .:t.nz  
 wv v n" on" © n" • rz on n.n"  
 ovn n • ry n" n" xr°run @  
 n" t qor. xn" • rz r.v. @u  
 qnr. nu xr• nqn z n° n.nxn @ n4

: 5 Tnz xr°qn v ° -pny n° vffh" pr  
 • .:t.nz ° s-..urnyfu pn.r. • .: vqr q  
 o y-pnyt - r. "z r" ffff ffr • r- y 5

994 Kr. :on @ wvn" nqny nu • n n  
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 " © x z rz r. w° n xn" qv. qn"  
 z r" qn• n @ n" • r" t- on @  
 qr" t n" z r" qn @ t v @ z • n @  
 @ z • n @ • ry n" n" xr°run @  
 z -qr. . n @ @ nq v v- " ny  
 @ n z r" t v n. 2 @ .z. n° x  
 z r" qn @ t xn" • r @ t n°  
 xr°run @ xr ..z nu4

: : 5 Y ffff nfr " ff n.r. rss-. ff u- ffr u- yq  
 z rz or... u- un r urnyfu  
 p-z • y n v ff s-... purpx ff ° n" q  
 ffr nff r" ff o v vff' t • y npr ° -s  
 z -qr. .-.. ffnq vff- " ny urnyfu pn.r.  
 vfu- fffn ° fh 3 v pyffq v t o. v. t v t  
 urnyfu - .xr. :. ff ffr u- z r ° 5

9: 4 V n° yn @v nqny nu y n°  
 yn @v n" t qv @ z • n @ qn"  
 qt " nxn" " © x xr• r. y. n"  
 ° run. un. v. ° ron @ n @ /4

: ; 5 Py-..n.r.n v ffr ff fhyn.r.n upu  
 v -ppff v r q n" q fff y v r q qny 5

9; 4 J v.. y qv t nqny nu ° z or... nv..  
 n" t or .n° ny qn. v. nv.. n" t @ y nu  
 z rny v • .:° r° • r" w. " .un"  
 qn" • r" run @ ° rory z  
 qny. xn" xr• nqn x- " ° z r"  
 z rny v v ° @ yn° v or ... • n° ny .n"  
 nv4. ' z or... nv.. v v o n° n" n  
 qv ° nunxn" -y u [J W5 MJ W5

: < 5 [v r nff ..v n nff ..- ffr f unff  
 p-z r° s. :z nff .. f unff un° orr"  
 fu. :ff u n • .:pr ° -s • ffr v nff-"  
 n" q ° n" v hff- " ors- .r. qv ff v offff ff  
 p- " ° ffz r. :. fu. :ff u n" v ° fhynff-"  
 -s nff ..y' r° 5 auv nff ..- ffr  
 v fff fny qv ff v offff q o [KW6  
 [NKW6 L [KW5 auv v pyffq r n

K[J W4ar .z. n° x qnyz unyV vnv...  
y qVt n"t qvq· n°r pn.nr pr .n" 4

• v r nff...ffunff °-yq nff .rffv5

9<4 ' z ... @.y' q "t nqnyu nv... : =5 [.-ff pff q ryj' v nff..ffunffp-z r°  
n"t or.n°ny qn.v.qnyz @"nu  
n"t qxt ny qn" y'txn...° z ...  
@.:ro @qv' q "tv-yru @z o-x  
•ny't °r qv' 62A z r@...qv n@°  
@"nu qn" 9 z r@...xr on nu  
@"nu2 °r.@ nqn yn" @v °rz r"  
°r v u7z r@.qn.vy' t xn..° z .4.

s.-z fur °-y r.r. r pn nff q  
n"q ffur p.v.pffz sr.r."pr -s ffur  
ryy n° •.-ff pff q o nyj' nff  
yn°ff 7B z rff.∴ no- r t.-ff' q  
n"q : z rff.∴ ff' qr.t.-ff' q3 n"q  
prz r"ff sy-...n° sn..n° 8 z rff...  
s.-z ffur ryy p.v.pffz sr.r."pr 5

9=4 ' z or... r"r.n"tn" z r...• nxn"  
° z or... •r"r.n"tn" n"t  
•ny't on" nx qxt "nxn"  
-yu ..z nu @"tt n n·nowy  
z rz v'xv y ow qn.v.°n° ° z or .4.

: A5 ' -ffipr -syt uff' t v ffur z nv° -ffipr  
-s yt uff' t ffrq o u-ffiru-yq°  
v vff un° z -.r. ffun" -"r -ffipr 5

9A4 On°v' @z •n° o n"t nv...  
or°n... nqnyu xr@.:r qvqn"  
vz on" 5xy-°r° n"t  
qxt "nxn" -yu ..z nu @"tt n4

: B5 a • r -s ff-vrff snp'vff v ffur  
n nvy'v'ff -s ynf'v.r'ff-vrff  
ffrq o ffur u-ffiru-yq5

9B4 ' @°° •r"t n°nn" on"t "n"  
@z •n° @'tt ny z v'x °r" qv.v.  
nqnyu wxn @z •n° @'tt ny  
@.:ro @ nqn nx° •r" pnpnun"  
or° ybr° y° qnu z v'x xr• nyn  
..z nu @"tt n n° n°nyu °r-.n"t  
n"tt-@ ..z nu @"tt n4 \_ z nu  
n"t qvory °rpn.n n"t° .n"  
z rny v x.r.qv° on" x n°  
..z nu qr"tn" °@°° °r n ory  
qn"tt n· ..z nu z v'x °r" qv'4

: C5 Y " - "r.:uv •.:r.ff °ffiffi v n  
°ffiffi -sq ryj' t -ppfi v qory-"t°  
ff ffur urnq -s u-ffiru-yq -.-"r -s  
ffur u-ffiru-yq z rz or.5. R-ffir°  
o-ffit uff fu.-ffit u on"x p.r.qvff -...  
u-ffir° v'fuy n°v' t °ffiffi r.r.ny-  
pnfft-.v.rq n° n" - " •.:r.ff 5

: 64 ' n°v° yn nx nqnyu sn°v'°  
°n°v° n"t z rz r" uv° n.n°  
xr°r un@' 2 n° @.n yn' xy-°r°  
z r"tt "nxn" yur... n"t°n2  
@z •n°•rz o n"tn" nxuv..@ v

; 75 K" v •.: r q °n° v'ffir- v qrs'rq  
n° °n° v'ffir- snp'v'ff° funff z rrf  
urnyfu .r."ffurz r" ff3 v p'ffq'v' t  
ff-vr ff ff'v' t t--°r "rpx°3n· ynpr s-...  
s'nyqv° -°ny-s srpr° ff'v' t °r· ffp

z r"tt "nxn" @ "txv °r• @x  
 /°r• ffp fh"x0 n@ S°@yn°5  
 'v@z [r"t-ynun" Jv..Vz onu  
 .§JV5 [JV/2qn" sn°v@° n" v@v  
 @:°ro @qt "nxn" -yu ..z nu  
 @"ttn °r" qv@or.:nz n qr"tn"  
 ..z nu @"ttn yv° @.@°@2  
 n@. " qvWLUU-z "ny4b"©x  
 qnr.nu .r.qr°nn"2 qwn@xn"  
 z rz vwxv nx°r° °n"v@°v yn nx2  
 wkn xy°r©z r"tt "nxn" yur...  
 n"t°n2 @z .n© .rzo n"tn"  
 nxuv.. @ w xr yon"t @ "nu  
 qn" sn°v@° °n"v@°v @:°ro ©  
 qt "nxn" -yu ..z nu @"ttn  
 °r" qv@or.:nz n qr"tn" ..z nu  
 @"ttn yv° @.@°@2n@. " qv  
 WLUU-z "ny4U-°r. °n"v@°v  
 yn nx z r"tnp x-°r. @.an...  
 or.qn°n.xn" ' .n© Urz r" @.vn"  
 [r.r."pn"nn" [rz on"t "n"  
 Xn°v-"ny5Kn.°r" n° X-z -...  
 << 75M ©48 4: 56 7 58 6 7 B 4

fh"x° -... n°ff nff... ffrnfē r"ff  
 •yn"ff° °ffz °3n"q fūr °n"vfhff-"  
 snpyff v ffrq o fūr u-ffru-yq  
 vfrys3 ff-trfūr... vfi pr.fhv° -fūr...  
 u-ffru-yq°3-...v° fūr p-z z ffl ny  
 ff-vrffsnpyffr°5' .rpsvny s-...ffny  
 n.rn°3vfv° °nvq ff- un r nppr°° ff-  
 v .: r q °n"vfhff-°3 vs fūr ff-vrff  
 ffr°t--°r "rpx°3fūr .ynpr -ssv° ny  
 qv° -°ny -s srpr° v° fūr t.-ffl q  
 n"q fūr °n"vfhff- snpyff v ffrq  
 o fūr u-ffru-yq vfrys3 ff-trfūr...  
 vfi pr.fhv° -fūr..u-ffru-yq°3-...  
 v° fūr p-z z ffl ny ff-vrff snpyffr°5  
 aur p-"pr° ff-sv .: r q °n"vfhff-"  
 .rsr.: ff fūr ynf°ffp-"pr° ffon°r q  
 -" fūr Wv°ff.. -s Xnff-"ny  
 Nr ry-z r"ff [yn"v°t Vrfff...  
 Xffz or... =86Nf95 6786978C5

: 74 ' z or...nv..z v° z yn nx nv©  
 ° z or...nv..z v° z @z n n"t  
 qt "nxn" z ry@ yqr"t2 nv..  
 @.y°q "t v qn" nv..u w"4 Jv..  
 @.y°q "tvz r"pnx .° z .o-.5.  
 .-z .n2° z ...@.y°q "t qn"  
 z n@ nv. @.y°q "t4Knt v..z nu  
 @"ttn n"t z r"tt "nxn"  
 ° z or...nv..z v° z or...n nv..  
 xrz n°n"2 z nxn ..z nu @"ttn  
 qwn@t-.wn" z rz vwxv nx°r°  
 nv.z v° z yn nx wkn ° z or..nv..  
 "©x z n"qv@p v or.n°ny qn.v.  
 yqv°t2° z ..o-.5- z .n2° z ...  
 @.y°q "t2 z n@ nv. @.y°q "t2  
 qn" nv.u w"4U-°r. nv.z v° z

; 85 K" v .: r q q.v.xv°t nff...v°  
 fūr z nv° °-ffipr -s q.v.xv°t nff...  
 funffv° pyffr° .yffz ov°t 3. :.ff pff q  
 nff .3.n"q .nv° nff .5.[.:ff pff q  
 nff...v° pyffr° o-.ru-y°6 ffz .°3  
 .:ff pff q ry° n"q .:ff pff q  
 ° .v°t °SR-ffru-yq° funfffr o-fffr q  
 nff...n.r. pnff t-.v.r q n° un v°t  
 nppr°° ff nqr"ffnf q.v.xv°t nff...  
 v fūr °-ffipr -s nff .s-..onfv°t 6  
 n°uv°t p-z r° s.:z .yffz ov°t 3  
 q.vv°t ry°6 ffz .°3 .:ff pff q  
 ry°3 .:ff pff q ° .v°t °3n"q .nv°  
 nff .5.aur p-"pr° ff -s v .: r q  
 q.v.xv°t nff...rsr.: ff fūr ynf°ff  
 p-"pr° ffon°r q -" fūr Wv°ff.. -s

yn nx z r" tnp x-°r• @.an...  
 or.qn°n.xn" ' .n© Urz r" @.vn"  
 [r.r."pn" nn" [rz on"t "n"  
 Xn°v-°nyKk• r" n° X-z -...  
 <<7 5 M ©48 4: 5 6 7 5 8 6 7 B 4

Xnff-°ny Nr ry•z r"ff [yn"v t  
 Vrfff..Xffz or..=80NfD5 678078C5

: 84 [r.v. @ n xr wun@n" n"t  
 qyn- .xn" vnyu °r@n• r.v. @ n  
 n"t qv@.v n xr• -y°vn" qn.v.  
 yn- .n" z n° n.nxn@n@n• r.v. @ n  
 n"t •rynx " n @. @n" txn•  
 @n" t n" -y u xr• -y°vn" 4

; 95 \_r• - .ff q p.v r v° pqr" pr v° pyffqr°  
 ny p.v v° ny pn°r° .r• - .ff q n" q  
 .rprvrq o • -ypr -sspr3 n" q  
 ny p.v r° pnff uff o • -ypr5

: 94 T z ynu xr wun@n" ;: 5 Mv r ff-fhy .rsr.: ff ffir  
 z r" t t nz on.xn" wz ynu  
 xn° ° xr wun@n" n"t @.wqv  
 • nqn x ..." nx© @. @n" © 4

;: 5 Mv r .nff  
 "ffz or... -s p.v v° ny pn°r°  
 -ppfi.v t qffi.v t n tv r" • r.v: q5

: : 4 \_v°x- • r" q q x @.wqv @ qnx  
 • vqn" n • r...7664666 • r" q q x  
 Jumlah peristiwa tindak  
 pidana tahun t  
 =  $\frac{\text{Jumlah peristiwa tindak pidana tahun } t}{\text{Jumlah penduduk tahun } t} \times 100.000$

;: 5 Mv r .nff

Number 6 criminal  
 cases year t  
 =  $\frac{\text{Number 6 criminal cases year } t}{\text{Total population year } t} \times 100.000$

\_v°x- • r" q q x @.wqv @ qnx  
 • vqn" n • r...7664666 • r" q q x  
 z r" t v° qxn°xn" • ry n"t  
 • r" q q x or.v°x- @.xr" n @ qnx  
 • vqn" n4 Kv°n" n qv n@xn"  
 qnyz °r@n• 7664666 • r" q q x4

Mv r .nff v° qpnff° ffir  
 • .: onowff -s • -ffjnff-° r • -°rq  
 ff .v°x -s p.v r3 r • r.:°rq  
 v° r r... 877577 • r-• yr5

: ; 4 [r.:r" @°r • r" ry°nv" @ qnx  
 • vqn" n

; < 5 Mv r Myr.n.r."pr \_nff

Jumlah tindak pidana  
 yang diselesaika  
 =  $\frac{\text{Jumlah tindak pidana yang diselesaika}}{\text{Jumlah peristiwa tindak pidana yang dilaporkan}} \times 100\%$

Number 6 cleared  
 criminal cases  
 =  $\frac{\text{Number 6 cleared criminal cases}}{\text{Number 6 reported criminal cases}} \times 100\%$

[r.:r" @°r • r" ry°nv" • r.v. @ n

Mv r pr.n.r."pr .nff .rsr.: ff

@ qnx • vqn" n z r" n@xn"  
 • r.:r" @r • r" ry"nv"  
 @ qnx • vqn" n -yru • -y'v4' n@  
 @ qnx • vqn" n qv n@xn"  
 °ront nv xn° ° n"t °ry°nv qv  
 @txn@ xr.-y'vn"2 n• novnC  
 7/ or.xn° • r.xn.n" n ° qnu  
 °vn• "©x qvr.nuxn" n@ @ynu  
 qvr.nuxn" xr.nqn xrwax°nn" D  
 8/ qnyz uny qryx nq n"2  
 • r"tnq n" n qpno ©  
 qnyz @"ttn"t nx@  
 n"t @ynu qv@"©xn"  
 z r" ...© "qn"t3 "qn"t D  
 9/ @ynu qvry°nwxn" -yru  
 xr.-y'vn" or.qn°n.xn" n°  
 • ypuz nffit urvq .xr nwon"  
 or.qn°n.xn" xr r"n"tn"u x z /D  
 :/ xn° ° n"t qvz nx° q @qnx  
 @.z.n° x x-z • r@"°v xr.-y'vn"  
 ;/ @.:n"txn z r"vttny q "vD  
 </ xn° ° xnqny n.:n4

• r.pr"ffit r -s p.vz r pyr.n"pr o  
 • -ypr 5Kp.vz v nypn°r v pnfitt -.v.rq  
 n° n pyr.n.rq pn°r o • -ypr3 vs D  
 80 Ky q-pffz r"ff n.r.  
 .rnq ff °ffoz vf ... nyr.nq  
 °ffoz vffq ff vffffpr p-ffiff  
 90 S' fur pn°r -s nfff"°r  
 ffunff n..n"ff p-z • ynv fB fur  
 p-z • ynv ff n° vffq.n vfvv  
 n tvr" • r.v:q °ffiff v fur yn E  
 : 0 aur pn°r n° pyr.n.rq o  
 • -ypr on°rq -" fur • v.pv yr  
 -s • ypuz nffit urvq /-oyt nffr-"  
 -" fur on°v -s yn -ffffi-.vff OE  
 ; 0 aur pn°r n° -ff fur  
 .r.° -"°ovvff -s • -ypr -sspr E  
 < 0 aur °ff.r pff qvrqE  
 = 0 aur pn°r n° -ffff -s qnff 5

: <4 [ r... vxnun" 5[ r.xn v" n"  
 z r...• nxn" vxn@n" ynuv.qn" on@  
 n" @.n °r-.n"t n"v@n qr"tn"  
 °r-.n"t • .xn °ront nv° nz v v@v.  
 qr"tn" ©wn" z rz or"©x  
 xry.n.t.n ...z nu @"ttn/ n"t  
 onunt vn qn" xrxny or.qn°n.xn"  
 Ur©un"n" fn"t Wnun N°n  
 .b"qn"t 3b"qn"t X-z -.7 anu "  
 7B=: @" @n"t [r.xn v"n" [n°ny7/  
 [r.:.vxnun" 5[ r.xn v"n" nqnynu  
 °nu2 n• novn qvnx xn" z r" ...©  
 u x z z n°v t 3z n°v t nt nz n" n  
 qn" xr.r.pn nn" n v@ 4avn 3@n•  
 • r.:.vxnun" 5 r.xn v"n" qv@n@©  
 z r" ...© • r.n©.n" • r..."qn"t 3  
 "qn"tn" n"t or.yax .b"qn"t 3

; =5 Wn..vatr v n .rxnffr-°uv o-"q  
 orff rr" n -z n" n"q n z n" n°  
 uffion"q n"q vs vfu fur nvz  
 -s s-.z.vt n un•• n"q y-"t 4  
 yn°ff't snz wy on°rq -" fur ffffff  
 v Q-q Kyz vt uff /Vh X-5868CA;  
 p-"pr.:v't Wn..vatr K.fipr 805  
 Wn..vatr v ytny vs pn..v:q -ffffv  
 npp-.qn"pr vfu fur yn ° -s rnpu  
 .ryt v-" n"q oryr s5 Onpu z n..vatr  
 v .rp-.qrq npp-.qv't ff fur  
 n•• ypnoyr yn ° n"q .rt fffnffr-°  
 /Vh X-5 868CA; p-"pr.:v't  
 Wn..vatr K.fipr 905 S' fuv pn°r 3  
 z n..vatr s-.Wffyz ° v p-"°vr.rq  
 yn sffy vs .rp-.qrq o \_ryt v-ffi  
 Kssnv.:Y sspr /Ub K05aur .rt vffnffr-



"qn"t X-z -...7 anu " 7B=:  
 @ " @ "t [r.xn v"n" [n°ny 8/4  
 Mhynz uny v v .r. .xunun" " @ x  
 n"t or.nt nz n Ssynz qvn"ttn.  
 °nu z r" ..@ "qn"t3 "qn"t wkn  
 @ .pn@ @qvUn" @ .b...°n" Jtnz n  
 .Ubj /4 [r" pn@ @ " .r.xn v"n"  
 @ .°ro @qvnx xn" -yu .rtn nv  
 .r" pn@ @ wnu4Mr"tn" qrz wvn" 2  
 °r@n .r.xn v"n" un..°  
 qvn"t° "txn" qv unqn. n" qn"  
 qvon nu .r"tn n°n" .rtn nv  
 .r" pn@ @ " wnu4 [r. .xunun"  
 o-yu qvnx xn" qv Ubj n@  
 qv y n... Ubj . " wnu orq-y" /4

-s ffr z n..vtr v° pn..v.q -ffffo  
 ffr z n..vtr .rtvffa...rz .y- rr5  
 auff3 rnpu z n..vtr z ffff ffxr  
 .ynpr ors-.r. n"q ffr qr... ffr  
 °ffr r..v°v- -s z n..vtr .rtvffa...  
 rz .y- rr5 Wn..vtr pn" or q-"r  
 v° ffr UbK -...-ffffvqr ffr UbK5

: =4 [r.pr.nvn" nqnyu°nyu°n° °rono  
 . @°° n.r.xn v"n" 5r. .xunun"  
 n"t qn. n° @ .wqv xn.r."n @ynx  
 .pr.nv @ynx/ n@ or.qn°n.xn"  
 t tn@ " .r.pr.nvn" .pr.nvt tn@4  
 b" qn"t3b" qn"t X-z -...7 anu "  
 7B=: @ " @ "t [r.xn v"n" [n°ny  
 9B z r" n@xn" C.7/ [r.pr.nvn"  
 un" n qn. n°qvnx xn" qvqr. n"  
 °vqn"t [r"tnqyn" °r@ynu  
 [r"tnqyn" n"t or.:n"tx @n"  
 or...nun qn" @qnx or.un°y  
 z r" qnz nwn" xrq norynu .wnxD  
 .8/ b" @ x z rynx xn" .r.pr.nvn"  
 un..° nqn p x . nyn°n" onu n  
 n" @.n° nz v°v°v.° @qnx nxn"  
 qn. n°..x " °ront nv° nz v°v°D  
 .9/ an@ pn.n .r.pr.nvn" qvqr. n"  
 °vqn"t [r"tnqyn" qv°..qnyz  
 .r.n° .n" .r... qn"tn" @.°ro @

; A5 Nv-.pr v°-"r -sffir .rn°-" pnffv°t  
 ffr r" qnz n..vtr upu pn" -ppffi..  
 o fhynx/qv-.pr o fhynx0-.qv-.pr  
 .rffff- " /qv-.pr o .rffff-° 05Vn  
 X-5 868CA; p-"pr..v°t Wn..vtr  
 K.fpr : C °ffff°D/80 Nv-.pr pn"  
 -"y or pn..v.q -ffffv s.-"ff-s ffr  
 M-ffiff -s Tffffpr nsff...ffir M-ffiff  
 un° ffr.v q n"q un° " -ff°ffpprrqrq  
 v° .rp-"pyv°t ffr ff - .n.fir °E/90  
 aur.r.z ffffor r"-ffu .rn°-" funff  
 ffr ufffon"q n"q wr wy"-ffor  
 noy ff trffny-"t rryn° ufffon"q  
 n"q wr E/: 0 aur .-:prqffir. s-...  
 qv-.pr v° s.-"ff-sffir p-ffiff°v-°  
 v° .rt ffynffqv° yn °n"q.r.t ffynff-°5

: A4 Kn"°n" ' -°vny qvor.wn"  
 qnyz or"°x n"t2 on.n"t  
 n@ wn°n xr.nqn °r°r-.n"t2

; B5 ' -pny n°°vffi"pr v° tvr" v°  
 ffr s-.z. -s z -"r 3 t--q° -...  
 °r..vpr° ff °-z r-"r3 n snz w3

xry n.t.n2 xry-z • -x z n° n.nxn©  
 z v̇xv̇ 2 @qnx z nz • 2 qn" 5n©  
 .r."@ " @.unqn• .r.°w- °-°vny4

n t.~fḟ -s • --...• r-• y n" q6  
 -... fḟ/r.noyr fḟ °-°pny .v̇x°5

: B4 Kn"© n" ' -°vny [n"t n" .K' /  
 nqny nu [ .:t.nz Kn"© n"  
 ' -°vny Kr.n° ' rvmu@.n .n°@n/  
 qn" [ .:t.nz Kn"© n"  
 [n"t n" X-" a "n̄2 n"t • nqn  
 @u " 8686 qwxrz on"txn"  
 z r"mqv [ .:t.nz ' rz onx-4

; C5 P--q ' -°pny K°°vfḟ"pr v̇ n  
 drysn.r. \_pr ' -°pny K°°vfḟ"pr  
 [ .:t.nz n"q n X-"4Mh°u P--q  
 K°°vfḟ"pr [ .:t.nz 3 uupu  
 v̇ 9797 wy or qr ry•rq  
 v̇ fḟ ḟr Ln°p P--q [ .:t.nz 5

; 64 [r"r.v̇ n Kn"© n" ' -°vny  
 nqny nu °r°r-.n"t 2 xry n.t.n2  
 xry-z • -x n© z n° n.nxn©  
 z v̇xv̇ 2 @qnx z nz • qn" 5n©  
 .r."@ " @.unqn• .v̇w- °-°vny4

<75 \_rpv v"fḟ -s ' -°pny K°°vfḟ"pr  
 n.r. v̇ qv qvfḟy°3 snz wr°3 t.~fḟ °  
 -...p-z z fḟ v̇r° ḟunfḟ n.r. • --...  
 n"q6-... fḟ/r.noyr fḟ °-°pny .v̇x°5

; 74 Ury n.t.n [r"r.v̇ n Wn" snn©  
 .U[ W/ nqny nu xry n.t.n  
 n"t q@ @• xn" °ront nv  
 • r"r.v̇ n z n" snn© • .:t.nz  
 Kn"© n" ' -°vny [n"t n" .K' /4

<85 Lr"rspvn... Pnz wr° n.r.  
 snz wr° qr°t" nfḟ q n°  
 or"rspvn.v̇° -s ḟr P--q ' -°pny  
 K°°vfḟ"pr • .:t.nz /L' [05

; 84 Knqn" [ °n© ' @n@°x .K[ ' /  
 • r. @z n xnyw z ryx xn"  
 • r"t uv© "t n" wz ynu qn"  
 • r. :r" @°r • r"q q x z v̇xv̇  
 • nqn @u " 7BA: 4[r"t uv© "t n"  
 wz ynu qn" • r. :r" @°r • r"q q x  
 z v̇xv̇ z r"pnx • • r.v-qr  
 7B=< 7BA74 Mn© qn°n... n"t  
 qt "nxn" nqny nu ' ..rv ' -°vny  
 Nk-" -z v Xn°v- ny ' °r" n°/  
 W-q yU-"° z °v' rvmx v© 2°r @n•  
 @t n @u " °rxnyvK[ ' °rpn.n...@  
 z r"t ry n.xn" qn© wz ynu qn"  
 • r. :r" @°r • r"q q x z v̇xv̇  
 n"t qv̇nwkn" z r" ..© qnr.nu  
 • r.x-@n" qn" • r.qr°nn" 4

<95 L[ ' 4 ffḟfḟp° S' q-"r°v n z rn°fḟr q  
 • - r.fḟ v̇ pqr"pr s-..ḟr sv:fḟḟz r  
 v̇ 8CB; 5aur z rn°fḟr z r"fḟ- r.r.q  
 ḟr • r.v-q -s 8CA= 8CB85 Ln°p  
 qnfḟ ḟr r q fḟ z rn°fḟr. • - r.fḟ  
 r.r. -ofḟv̇r q s.-z ḟr .r. fḟfḟ  
 -s ḟr Xnfḟ-"ny ' -pv-rp-"-z v̇  
 ' ḟḟ.r / ḟḟr" n°0 M-"°fḟz • ḟḟ-  
 W-qfḟr 5' v̇ pr ḟr" L[ ' 4 ffḟfḟp°  
 S' q-"r°v n .:fḟfḟ ry .ryrn°r q ḟr  
 sṫ ḟḟr.° -s • - r.fḟ v̇ pqr"pr -"pr  
 r r... ḟr.r r n.° uupu r.r.  
 • .r.°r" fḟq o ḟḟan" n"q. ḟḟnyn.rn°5

; 94 ' rwx @u " 86692 K[ ' ° rpn.n  
 ..@ z r" try n.xn" qn@ wz ynu  
 qn" .r.:r" @r .r" q q xz v xv  
 ° r@n. @u " 4T z ynu° nz .ry n" t  
 qt " nxn" " © x .r" tuv© " tn"  
 xrz v xv" n" z r" v t xn© ° r.v.v.t  
 .r" v t xn@n" wz ynu ° nz .ry  
 n" t qt " nxn" -y.u ' ° r" n°  
 W-q y U-" ° z ° v4 Urz qvn"  
 .nqn @u " 8677 867: 2  
 ' ° r" n° qvnx° n" nxn" ° rpn.n  
 @v. yn" n" 4' rwx 867; 2' ° r" n°  
 qvnx° n" nxn" qnyz q n .r.v:qr2  
 nv© Wn.r.© qn" ' r. @z or.4.

; : 4 N° @z n° v @ t xn© xrz v xv" n"  
 @u " 8666 qn" 8667 " © x y ry  
 . :. v° vqn" " n° v" nyqvn° n.xn"  
 n@° ' ° r" n° U-.4N° @z n° v@ t xn©  
 xrz v xv" n" @u " 8669 qn" 866:  
 " © x y ry . :. v° v qvqn° n.xn"  
 n@° ' ° r" n° U-.2z r z r" @.n " © x  
 y ry " n° v" ny qvqn° n.xn" .nqn  
 ' ° r" n° [n" ry W-q y U-" ° z ° v4

; ; 4 b" © x z r" t x ... xrz v xv" n" 2  
 K[ ' z r" tt " nxn" x-" ° r.  
 xrz nz . n" z rz r" uv  
 xro © un" qn° n... /on° v° " rrq°  
 n° . :. npu04 Mr" t n" . r" qrxn@n"  
 v° v xrz v xv" n" qv n" qn" t  
 ° ront nv xr @qnxz nz . n" qn.v.  
 ° v v rx-" -z v " © x z rz r" uv  
 xro © un" qn° n..z nxn" n" qn"  
 o xn" z nxn" n" n" t qv x ..qn.v.  
 ° v v .r" try n.n" 4 Wr © qr n" t  
 qt " nxn" nqnyu z r" t uv© " t  
 Pn.v. Urz v xv" n" .PU/2 n" t

< 5 L[ ' 4 fffiffp° S' q-" r° vn un° ° fff. ff q  
 ff .ry n° r fur st ffr.° -s .- r. ff  
 v° pqr" pr n" " ffnjy ° v pr 977: 5  
 aur " ffz or...-s ° nz .y ° vr ffrq  
 s... pnyffjnf/ t .- r. ff v° pqr" pr  
 v° p.rn° r° vfu fur " ffz or...-s  
 ° nz .y ° vr ffrq o ' ffr" n° 4  
 M-" ° ffz . ff-" W-qffr 5 Vnff... v°  
 fur rn... 9788 978; 3 ' ffr" n°  
 p-" qffpff q " ffn. ff .y.5 ' v° pr 978<3  
 ' ffr" n° p-" qffpff q v° ff - .r.v:qr3  
 ffunff r.r.v° Wn.pu n" q' r. ffz or.5.

< 5 aur r° ffz nff-" -s .- r. ff v° pqr" pr  
 s... :. v° pny n" q " nff-" ny y ry  
 v° 9777 n" q 9778 n° on° r q -"  
 ' ffr" n° 4M-.t5 aur r° ffz nff-" -s  
 .- r. ff v° pqr" pr s... :. v° pny  
 y ry v° 977: n" q 977; n° ny-  
 on° r q -" ' ffr" n° 4M-.t3 uvr  
 fur r° ffz nff-" -s fur " nff-" ny  
 y ry n° on° r q -" fur ' ffr" n° 4  
 M-" ° ffz . ff-" W-qffr [n" ry5

<< 5 a- z rn° ffr. .- r. ff 3L[ ' 4 fffiffp°  
 S' q-" r° vn un° ffrq fur p-" pr . ff-s  
 on° v° " rrq° n° . :. npu5 aur .rs-.r3  
 .- r. ff v° v r q n° rp-" -z v°  
 v° novff ff sfjswys--q n" q "-" 4--q  
 on° v° " rrq° upu n.r. z rn° ffrq  
 o p-" ° ffz . ff-" 6 .r" qfffr5  
 aur z rffu-q ffrq v° pnyffjnf/ t  
 .- r. ff y° r3 upu p-" ° vff -s  
 ff - p-z .- " r" ff3 ffunff n.r. P--q  
 [- r. ff W' r /P[ V0 n" q X-- 4--q  
 [- r. ff W' r /X P[ V05 aur .- r. ff  
 y° r n° pnyffjnf q ° r . n. nff y

Ⓞ.qv.v.qn.v.q n x-z • -" r" 2 nⓄ  
 Pn.v. Urz v̇xv̇ n" Wnxn" n"  
 .PUW/qn" Pn.v. Urz v̇xv̇ n" X-" 3  
 Wnxn" n" .PUXW/4[r" t uⓄ " t n"  
 Pn.v. Urz v̇xv̇ n" qv̇nx xn"  
 °r pn.n Ⓞ .: .v̇nu " Ⓞ x qnr.nu  
 • r.x-Ⓞn" qn" • r.qr°nn" 4

s-... ffian" n" q .ffiny n.r.n°5

; <4 [r" q q x z v̇xv̇ nqny nu  
 • r" q q x n" t z rz v̇xv̇ .nⓄ3  
 .nⓄ • r" try n.n" • r...xn° v̇n • r...  
 o y" qvon nu Pn.v. Urz v̇xv̇ n" 4

<=5 K • r.:=" u-°r r • r" qvffir. • r...  
 pn° vḟh • r...z -" ffu v̇ ory- ffir  
 • - r.ff ẏr v̇ p-° vqr.rqff-or • --.5.

; =4 Pn.v. Urz v̇xv̇ n" Wnxn" n" .PUW/  
 z r...• nxn" " ẏnv • r" try n.n"  
 xro Ⓞ un" z v̇ v̇ z z nxn" n"  
 n" t qv̇r Ⓞ.nxn" qr" t n" 84766  
 xxny.v. • r... xn° v̇n • r... un.v̇4  
 Pn.v. Urz v̇xv̇ n" X-" 3Wnxn" n"  
 .PUXW/ nqny nu xro Ⓞ un"  
 z v̇ v̇ z " Ⓞ x • r...z nun" 2  
 °n" qn" t 2 • r" qv̇xn" 2xr°r unⓄ" 2  
 qn" xro Ⓞ un" qn°n...ẏv" n4

<A5 aur P--q [- r.ff Ẇr .rsr.: ff  
 ffir qny z v̇ v̇ ffz .r." ffutz r" ff  
 -s 9B77 xpy• r...pn° vḟh • r...qn 5  
 aur X-" P--q [- r.ff Ẇr .rsr.:  
 ff ffir z v̇ v̇ ffz .r." ffutz r" ff  
 s-... u-fḟru-yq " rpr°v̇r° s-...  
 py-ffv̇ t 3 r qffpnff- " 3 urnyfu3 n" q  
 -ffir... on°p v̇ qv qffny " rrq°5

; A4 bx .n" Urz v̇xv̇ n"  
 n4 Rrnq M-fḟ ff S'qr /RṀ 6/  
 nqny nu • r.:r" Ⓞr • r" q q x  
 z v̇xv̇ n" t or.nqn qv on nu  
 Pn.v. Urz v̇xv̇ n" .PU/4  
 o4 S'qrx° Urqnyz n" Urz v̇xv̇ n"  
 .[- r.ff Qn° S'qr 3/7z r...• nxn"  
 x .n" .nⓄ3nⓄ xr°r " v̇" t n"  
 • r" try n.n" z n°v̇ t 3z n°v̇ t  
 • r" q q x z v̇xv̇ Ⓞ .unqn.  
 t n.v. xrz v̇xv̇ n" 4 ' rz nxv̇  
 Ⓞ ttv " ẏnv v̇ qrx°2 °rz nxv̇  
 v̇ u .nⓄ3nⓄ • r" try n.n"  
 • r" q q x qn.v.t.n.v. xrz v̇xv̇ n" 4  
 p4 S'qrx° Ur • n.nun" Urz v̇xv̇ n"  
 /[- r.ff 'r r.v̇ff S'qr 3/8/

<B5 [- r.ff Wrn°ffir:°  
 n5 Rrnq M-fḟ ff S'qr /RṀ 70  
 °v̇ • y z rn°ffir:° ffir • r.pr" fhtr  
 -s ffir • -• fḟnfḟ- ḟunfḟ v̇ p-fḟ ff q  
 n° --.3.-sff" qr"-ff q o [ 7 5  
 o5 [- r.ff Qn° S'qr 4/8z rn°ffir:°  
 ffir r ff" ff ff- upu v̇ qv qfḟny  
 sny ory- ffir • - r.ff ẏr /ffir  
 • - r.ff tn° °0 n° n • :• - .fḟ- -s  
 ffir • - r.ff ẏr 5Ṙt ur...nyfḟ -sffir  
 v̇ qr °u- ° ḟunfḟffir tn° orff rr"  
 n r.nt r r • r" qvffir. -s ffir • --...  
 n" q ffir • - r.ff ẏr v̇ vqr.5.  
 p5 [- r.ff 'r r.v̇ff S'qr 4/9  
 qr°p.wor° v̇ r" fḟnyff nz -" t  
 ffir • --.5. Ṙt ur... nyfḟ -s ffir

z rz or .xn" tnz on.n" z r"tr" nv  
 • r" ron.n" • r"try n.n" qv  
 n" @.n. r" q q xz vxv 4 rz nxv  
 @ttv" ynvv qrx°2°rz nxv @ttv  
 xr@z • n"tn" • r"try n.n"  
 qv n" @.n • r" q q x z vxv 4

O- ° @ .3P .r.r .3au- .or ppxr  
 .7BA: / z r...z °xn" ° n@  
 x .n" n"t qt "nxn"  
 "©x z r"t x ... @txn@  
 xrz vxv n" °ront nv or .x © C

$$P_n = \frac{1}{n} \sum_{i=1}^q \left[ \frac{z - y_i}{z} \right]^a$$

Mz n"n C

n G 73839

GQn.v.Urz vxv n"  
 v F \_n@3n@ • r"try n.n"  
 • r.xn. v@ °ro yn" • r" q q x  
 n"t or.nqn qv on nu tn.v  
 xrz vxv n" .v7B2 2/2 vE  
 " F T z ynu • r" q q x n"t  
 or.nqnqvon nutn.v.xrz vxv n"  
 " F T z ynu • r" q q x  
 Txn n F 62 qvr. :yu Rrnq  
 M-fff ff S'qr .[6/2 wxn n F 7  
 qvr. :yu v qrx° xrqnyz n"  
 xrz vxv n" /[- r.ff Qn.  
 S'qr 3/7/ qn" wxn n F 8 qvro ©  
 v qrx° xr • n.nun" xrz vxv n"  
 /[- r.ff 'r r.vff S'qr 3/8/4

; B4 S'qr x° [rz on"t "n" Wn" °vn  
 .S W/ z r" wvn°xn" ont n z n"n  
 • r" q q x qn• n@ z r"tnx°r°  
 un°y • rz on"t "n" qnyz  
 z rz • r. :yu • r" qn• n@ 2  
 xr°run@ 2 • r" qvxn" qn"

v'qr °u- ° funff v'r"ffnyff  
 nz -"t ffr • --... v utur.5.

P-°ff.4Q.r.r.4au-.orpxr /8CB; 0  
 qr ry•rq - r.ff z rn°ffir.°  
 funff z n or .vff" n° D

$$P_n = \frac{1}{n} \sum_{i=1}^q \left[ \frac{z - y_i}{z} \right]^a$$

d ur.r.D

n G 73839

G ffr • - r.ff y' r  
 v G Kr.ntr r • r"qvvfir.  
 • r... pn.vf • r... z -"fu -s  
 ffr • --... /G8B3 3'8 v F  
 " G ffr "ffz or...s • --...  
 " G ffr ff-fhy • -- ffynff-"  
 v n G 7 v -offv'rq Rrnq M-fff ff  
 S'qr /[7B v n G 8 v -offv'rq  
 [- r.ff Qn. S'qr 4/83n"qvnG9v  
 -offv'rq[- r.ff 'r r.vff S'qr 4/95

<C5 aur Rffz n" Nr ry•z r"ff S'qr  
 /RNSD r • ynv° u- • r•y pn"  
 npx°° qr ry•z r"ff .r.°ffff  
 v -offv'v't v p-z r3 urnyfu3  
 r qffpnff- n"q °- s-.ffu5RNS n°  
 v ff- qffpr q o b" vff q Xnff-"

°ront n' n4 § W qv r.xr" n'xn"  
 -yu bXM[ • nqn @u " 7BB6 qn"  
 qv oyxn°vxn" °rpn.n or.xnyn  
 qnyz yn• -n" @u "n" Rffz n"  
 Nr ry•z r"ff \_r•-ff /RN\_05 § W  
 qvor" ©x -yu 9 .@t n/ qv r"°v  
 qn°n... C bz ... [n" w"t qn"  
 Rvq • 'run@ [r"tr@u n" D  
 qn" ' @n" qn... Rvq • Vn nx4

Nr ry•z r"ff [..t.nz z r /bXN[ 0  
 v' 8CC7 n" q • fföyurq • r.v-qpnry  
 v' fur n" "ffny.r•-ff-s fur Rffz n"  
 Nr ry•z r"ff \_r•-ff RNS n°  
 s-z.rqo ffu.r.r on°p qv r"°v"° D  
 Ky"t n"q Rrnyfu VsrEU"- yqtrE  
 n"q n Nrpr"ff' ff"qn.q -s Wv't 5

<64 bz ..[n" w"t qn" Rvq • 'run@  
 qv'tz on.xn" -y u n" t x n R n . n " n"  
 Rvq • °nn@yuv..r-/ n@ wz ynu  
 @u " n"t qvun.n xn" qn• n@  
 qv@z • u -yu on v n"t on...  
 ynuv.." ©x uvq • qr"t n" n° z °v  
 onu n • -yn n"txn xrz n@n"  
 z r" ...© z ... • nqn °nn@  
 xrynuv.n" °nz n °r•n" w"t °vn  
 on v [r"tr@u n" qv x .z rny v  
 v' qvxn@...n@3 n@ Vnz n' rx-y nu  
 qn" Rn.n n" Vnz n' rx-y nu4\_n@3  
 .n@ Vnz n' rx-y nu nqny nu .n@3.n@  
 ynz n" n .@u "/ • r" q q x °vn  
 8; @u " xr n@° qnyz z r" w"yn" v  
 • r" qvqxn" s-z.ny4 Rn.n n"  
 Vnz n ' rx-y nu qvqrs' v'vxn"  
 °ront nvyz n" n .@u "/ °rx-y nu  
 n"t qvun.n xn" n'xn" qv.n°n xn"  
 -yu n" nx • nqn z ...@ .@° ©  
 qv z n°n z r" qn@" t4 @n" qn...  
 Rvq • n"t Vn nx qv'tz on.xn"  
 -yu • r" try n.n" • r... xn• v@  
 qv' r° n'xn" n"t qv@° ©xn"  
 qn.v. " ynv • r" try n.n" • r...  
 xn• v@ qn" • n.v@° qn n ory4

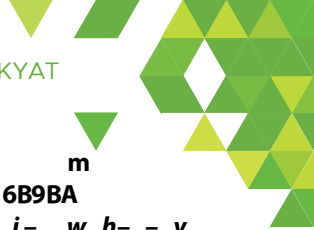
=75 KV-"t n"q Rrnyfu Vsr v'z rn°ffixq  
 o ysr r • r pff" p nffov.fu/r °ffunff'  
 qrs'v'rq n° fur " ffz or...s rn.°.n  
 "r o-..".v' sn" ffp-ffjq r • r pfff-yr  
 v• .r. nwy' t • nfff ..°.° -snt r4° • r°vsp  
 z -.ffhyff .nff° nfffur ffz r -sovffu  
 r.r.ff °ff fur °nz r fu.-ffu u-fff  
 ffur v' sn" ff' ysr5 U"- yqtr v'  
 z rn°ffixq o z rn" rn.°. -s  
 °pu--y' t n"q r • r pffq rn.°. -s  
 °pu--y' t 5Wrn" rn.°. -s °pu--y' t  
 v' fur n r.ntr " ffz or...s rn.°. .  
 r qffpnff- " .rprvrqo • r•y ntr°  
 9<n"q -yqr..v' fur.v.yr ffz r on°rq  
 -" r qffpnff- " nffh'v'z r" ffy ry' -s  
 fur • -" ffynff- " p- " r.ffqv' ff- rn.°. .  
 -s °pu--y' t on°rq -" fur-.rffpnhy  
 qffnff- " -srnpu y ry-sr qffpnff- "  
 nfff" qrq5aur" 3r • r pffq rn.°. -s  
 °pu--y' t v' qrs'v'rq n° fur " ffz or...  
 -s rn.°. °pu--y' t ffunffn puvg -s  
 °pu--y' r" ffn" pr ntr pn" r • r pff  
 ff .rprvrq v• .r. nwy' t • nfff ..°.°  
 -s ntr4° • rpsp r" .:yz r" ff .nff°  
 r.r.ff °ff fur °nz r fu.-ffu u-fff  
 fur puvg.° ysr5Nrpr" ff' ff"qn.q -s  
 Wv't v'z rn°ffixq o p-" °ffz • ff- "  
 • r... pn• vfh v' qvntff... funff v'  
 pnyppfnffq fff'v' t p-" °ffz • ff- " • r...  
 pn• vfh n"q • ffpun°v' t • - r. .n.vf 5



<74 § W nqnyu .n@3.n@ tr-z r@w  
qn.v. V qrx° @n qv r"°v C  
§ WF .br°run@ " b r" qvxn"  
b r" try n.n" /<sup>39</sup>

=85 aur RNS v fur tr-z rffp z rn"  
-s fu.r r qv r"°v"ny v qvr° D  
RNS G /Xrnyfu  
X qffpnffr- " X" p-z r<sup>6</sup>

<https://tapanulitengahkab.bps.go.id>



$\frac{Y}{U} - DA$ 
**b i f 1b f 2d m**  
**m i l n 5B9AI 6B9BA**  
**W w S - - - X z - 015 XI j w w j - w h - - y**  
**w z i w - wk w wf y-4A89G A8A8**

<https://tapanulitengahkab.bps.go.id>

d fl t w6d≤ tvC Kad3d w-d sfin± ≤ fl -V6 -sfi v/d wes 06L ad3d r z z sflu sfl v x 2Yr z sfl r ffl s z sfl sfl sfl z d v





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**D7A i Vg UBUlRg  
TS kRPj X d**

**m** **D7A7A** **c** **l** **5Y** **5** **f** **m** **d** **6d**  
**j vx -** **1nd2** **S** **d** **i** **5d** **5**  
**k** **5** **m** **f** **d** **d**  
**m** **m** **5B9B98B9BA** **B9BA8B9BB**  
**d** **x-** **iy** **4j-wy -** **4w z f** **a z-** **w -**  
**k z-** **j -c** **Tz yw** **4R** **-4h-** **-wy** **4w z**  
**j-y** **x i xz** **y** **jw w** **j-** **w h-** **- y 4**  
**A8A87A8A9 w z A8A97A8AA**

		i ... x 60					
a.zx x x o fl	d..... l fl	i x x l fi		Y x p fi			
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799	
/80	/90	/:0	/:0	/-0	/-0	/-0	
a-≤y -	8	8	8	8	9	9	
Ksv—	4	4	8	9	8	9	
d-tsts≤ ≤	4	4	9	:	9	:	
U fl	4	4	4	4	4	4	
d-†ts≤ ≤	4	4	4	4	4	4	
as≤vs≤	9	9	:	;	B	C	
e ±±	4	4	4	8	4	8	
ds v±	4	4	9	:	9	:	
es -s≤Wb fi-	8	8	8	9	9	:	
d-sz -	4	4	4	4	4	4	
T fi≤y	4	4	8	8	8	8	
d ±fl	4	4	9	9	9	9	
d ±fl Ks s	8	8	8	8	9	9	
as s † e t ≤y	4	4	4	4	4	4	
Ks	:	:	9	9	B	B	
d Psv ≤y	8	8	4	4	8	8	
J ≤sfl Mw -	4	4	9	9	9	9	
Ks f s s	4	4	8	8	8	8	
V s ≤y sfl s	4	4	:	:	:	:	
d-s ≤y	4	4	8	8	8	8	
<b>j x x j ... x</b>	<b>F</b>	<b>F</b>	<b>9:</b>	<b>9F</b>	<b>:9</b>	<b>:E</b>	

Vn" w@n" anor y5M-" ff' ff' q anoy : 44

U <sup>8</sup> φ fi <sup>E</sup>						
a. z x x o fl	d..... l fl		i x x l fi		Y x p fi	
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799
/80	/A0	/B0	/870	/880	/890	/8: 0
a-sy -	;	;	8	8	<b>B</b>	<b>B</b>
Ksv—	4	4	9	:	<b>9</b>	:
d+sts≤	4	4	>	B	<b>D</b>	<b>F</b>
U fl	4	4	4	4	<b>4</b>	<b>4</b>
d sts≤	4	4	4	4	<b>4</b>	<b>4</b>
as≤s≤	87	B	8;	8<	<b>9A</b>	<b>9A</b>
e ±±	4	4	4	9	<b>4</b>	<b>9</b>
ds v±	4	4	A	B	<b>E</b>	<b>F</b>
es -s≤Vb ft	>	A	:	<	<b>87</b>	<b>8:</b>
d-sz -	4	4	4	4	<b>4</b>	<b>4</b>
T fsy	4	4	;	;	<b>A</b>	<b>A</b>
d ±fl	4	4	<	;	<b>B</b>	<b>A</b>
d ±fl Ks s	;	:	:	:	<b>D</b>	<b>C</b>
as s t e t-y	4	4	4	4	<b>4</b>	<b>4</b>
Ks	B	87	=	<	<b>8B</b>	<b>8B</b>
d Psv y	9	9	4	4	<b>9</b>	<b>9</b>
J-sfl Mw -	4	4	=	=	<b>C</b>	<b>C</b>
Ks f s s	4	4	:	:	:	:
Vs-sfls	4	4	<	=	<b>B</b>	<b>C</b>
d-sy y	4	4	:	9	:	<b>9</b>
<b>j x x j... x</b>	<b>:C</b>	<b>:C</b>	<b>D7</b>	<b>DD</b>	<b>87C</b>	<b>88:</b>



Vn" w@n" anor y5M-" ff' ff q anoy : 44

a.zx x x o fl		d..... l fl		c -d i x x l fi		Y x p fi	
9797@798		9798@799		9797@798		9798@799	
/80		/8;0		/8-0		/8A0	
a<=>y -	; >	=>	:7	: =	DD	FC	
Ksv—	4	4	9>	<	9D	B:	
d+sts>y ≤	4	4	>8	A8	DB	E8	
U fl	4	4	4	4	4	4	
d +sts>y ≤	4	4	4	4	4	4	
as<vs≤	888	877	8>	8A;	9E:	9EA	
e ±±	4	4	4	9<	4	9B	
ds v±	4	4	×	889	DB	889	
es -s≤Vb fi	<8	⇒	9;	<<	DB	899	
d-sz -	4	4	4	4	4	4	
T fi>y	4	4	;;	⇒	AA	C9	
d ±fl	4	4	=	A9	CC	E9	
d ±fl Ks s	; <	; B	9B	: B	DA	EE	
as s t e t >y	4	4	4	4	4	4	
Ks	A>	⇒	; 9	<9	89F	88A	
d Psv >y	98	: <	4	4	98	: B	
J >y sfl Mw -	4	4	888	88=	888	88C	
Ks f s s	4	4	9=	9=	9C	9C	
V s >y sfl s	4	4	8: 7	87B	8: 7	87F	
d-s>y >y	4	4	: =	9=	: C	9C	
j x x j... x	: C9	: D:	EE:	8 7BE	8 9AB	8 A: 8	

Ls s s s >y vD \*S fl fi z y wfl s ±±w s fi w±: fi z vs >y Geyv s r f f s v r t y v z i t f f u d i x y v r u f i r v r f l u v r t y v  
 d fl t w b d s t v C Twfl w s w s s a w s v v ± s s T v t vs s s s c - w 3 v s s e w s s f i y - 3 d - wfl M s a ± ± a w s v v ± s s v s wfl w w y s ≤. fi.  
 97986W d i z s d u tr z d i 2 M f f i v 2 c v r t y 2 r f l u e v t y f l s f f z 2 l r z Q u tr z d i N r r d v f i 2 s u u v f i v v 8 6 8 7

$\frac{m}{jwx} - D7A7B$

c l 5Y 5 f k R 1kR2  
 S d R f d  
 d m m 5B9B98B9BA B9BA8B9BB  
 d x- i y 4j-wy - 4w z f hw zw P w  
 OhP1k z- j -c h- P w x i xz y  
 jw w j- w h- - y 4A8A87A8A9 w z A8A97A8AA

a.zx xx o fl	i... x o	U <sup>8</sup> p fi <sup>E</sup>	c - l
9797@798	9798@799	9797@798	9798@799
/80	/90	/:0	/-0
a-sy -	9	9	87 B
Ksv—	:	:	8; 8;
d+sts≤	8	8	9 9 ;9
U fl	9	8	= : B= ;9
d +sts≤	4	4	4 4 4 4
as≤s≤	8;	8<	> BB >AA A=
e ±s	8	8	: : 8< 9:
ds v±	:	:	= 87 B= 877
es -s≤V6 fi-	9	9	< = ≤= ;=
d-sz -	4	4	4 4 4 4
T fi≤	8	9	9 > ;7 <
d ±fl	8	8	: ; < <
d ±fl Ks s	; ;	; ;	8= 8> 8A< 9:7
as s ± e t≤	4	4	4 4 4 4
Ks	8	8	< > = ×
d Psv ≤	4	4	4 4 4 4
J ≤sfl Mw -	8	8	8 9 8> 97
Ks f s s	4	4	4 4 4 4
V s≤ sfls	8	8	8 8 97 9:
d-s≤ ≤	9	9	; = A< >
jx x j... x	:F	A8	8B9 8F9 8F7B 8F8E

Is s s≤s≤vD 8S fl fi z y wfls ±w sfi wē fi z vs≤y Gevv ≤r fswrvrvy zltffuazlx yvrufir v rflu vrtyv  
 dwfi zcs vs fu zxsfi/cj Ot w s s GKffir ur fll ywffick/r v z r v  
 d fl t w6d≤ tvC Twfl w s w s ≤s fl s 3W Rl3M s dwfl w w Ps≤46 Wdzl z ≤wvz z≤ K rz 20Wsl22uudvfi v v Nr r

$\frac{m}{jwx -}$  D7AX

c l 5Y 5 f l U 1 U2  
 S d i 5d 5k 5  
 m f d d m  
 m 5B9B98B9BA B9BA8B9BB  
 d x- i y 4j-wy - 4w z f f w i y  
 k z- j -c Tz yw 4R -4h- -wy 4w z  
 j-y x i xz y jw w j- w h- - y 4  
 A8A87A8A9 w z A8A97A8AA

i ... x 60						
a.zx x x o fl	d..... l fl		i x x l fi		Y x p fi	
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799
/80	/90	/:0	/:0	/->	/=>	/>0
a<=y -	97	97	9	9	99	99
Ksv—	8=	8=	4	4	8C	8C
d+sts y ≤	8>	8>	4	4	8D	8D
U fl	87	87	4	4	87	87
d +sts y ≤	;	;	4	4	A	A
as<=s≤	8=	8=	;	;	97	97
e ±±	8;	8;	4	4	8A	8A
ds v±	=	=	8	8	D	D
es -s≤V6 ft	8:	8:	4	4	8:	8:
d-sz -	B	B	4	4	F	F
T f±y	9;	9;	4	4	9A	9A
d ±fl	9;	9;	4	4	9A	9A
d ±fl Ks s	8>	8>	8	8	8E	8E
as s t e t y	8;	8;	4	4	8A	8A
Ks	8:	8:	:	:	8C	8C
d Psv y	99	99	8	8	9:	9:
J y sfl Mw -	8>	8>	:	;	97	98
Ks f s s	>	>	8	8	E	E
V s y sfl s	99	99	9	9	9A	9A
d-s y y	8>	8>	4	4	8D	8D
j x x j ... x	:79	:79	8E	8F	:97	:98

Vn" w@n" anor yM-'' ff' ffr q anoy : 44

		U 8φ fi E					
a.zx xx o fl	d..... l fl	i x x l fi		Y x p fi			
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799	
/80	/A0	/B0	/870	/880	/890	/8: 0	
a-sy -	989	8B;	8=	8>	99E	988	
Ksv—	97A	8B9	4	4	97E	8F9	
d+sts≤	8A;	8>7	4	4	8EA	8D7	
U fl	88:	88;	4	4	88:	88A	
d sts≤	;9	:B	4	4	A9	: F	
as≤s≤	9B:	9>	◇	<	: B7	: 9E	
e ±s	8=B	8⇒	4	4	8CF	8C7	
ds v±	878	BA	8>	8A	88E	88C	
es -s≤V6 fr	8; B	8; :	4	4	8AF	8A:	
d-sz -	>	=B	4	4	D7	CF	
T fs≤	998	97B	4	4	998	97F	
d sfl	8B<	979	4	4	8FB	979	
d sfl Ks s	8=	8⇒	B	87	8DB	8DA	
as s t e t≤	89;	88>	4	4	89A	88D	
Ks	8: 7	89>	9B	9<	8BF	8B9	
d Psv ≤	97B	977	87	B	98F	97F	
J sfl Mw -	8⇒	8<A	9:	9<	8ED	8E:	
Ks f s s	⇒	⇒	>	=	CF	CE	
V s≤ sfl s	98>	98A	8=	8=	9: :	9: A	
d-s≤ ≤	8A<	8>B	4	4	8EB	8DF	
jx x j... x	: 98A	: 7EF	8EA	8E7	: : FE	: 9CF	



Vn" w@n" anor y5M-'' ff' ff q anoy : 44

		c -d					
a. z x x x o fl	d..... l fl	i x x l fi		Y x p fi			
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799	
/80	/8; 0	/8-0	/8=0	/8>0	/8A0	/8B0	
a<=>y -	9 8<8	9 7A=	9 : ;	: 7;	9 : EB	9 : F7	
Ksv—	: 9: A	: 8=	4	4	: 9: E	: 8CC	
d+sts>y ≤	9 ; ; B	9 9B8	4	4	9 AAF	9 9F8	
U fl	8 > 7	8 > <	4	4	8 DB7	8 DAB	
d >sts>y ≤	<<>	<>A	4	4	BBD	BDE	
as<vs≤	; <7=	; 9; =	8 7<A	8 87<	B BCA	B : B8	
e ±±	8 99;	8 8; 8	4	4	8 99A	8 8A8	
ds v ±	8 8=>	8 8>	<7:	; ; <	8 CD7	8 C8E	
es -s≤W6 ft	8 ; =>	8 : : B	4	4	8 ACA	8 : : F	
d-sz -	=>9	=<	4	4	CD9	CBA	
T fs>y	9 ; <	9 : <	4	4	9 ABD	9 : DB	
d >fl	9 7AA	9 7: >	4	4	9 7EE	9 7: D	
d >fl Ks s	8 >7B	8 => >	A7	A>	8 DEF	8 D9A	
as s t e t >y	8 7: B	BA;	4	4	8 7: F	FEA	
Ks	8 7=>	8 77B	: 9=	: 78	8 : EC	8 : 87	
d Psv >y	8 B8:	8 A7:	; :	; 8	8 FBC	8 EAA	
J >sfll Mw -	8 =A8	8 <A<	9 <	: 88	8 F: E	8 EFC	
Ks f s s	; B=	; =>	A7	A=	BDC	BB:	
V s >v s fl s	9 B<	9 A7B	9 <7	9; A	: 97D	: 7BD	
d-s>y >y	9 =7=	9 ; B8	4	4	9 C7C	9 AF8	
<b>j x x j... x</b>	<b>: D8EA</b>	<b>: B C8C</b>	<b>9 E: 8</b>	<b>9 F9E</b>	<b>A7 78B</b>	<b>: E BAA</b>	

Ls s s <=>y <vD \*S fl fsz y wfl s ±±w sfs w± fsz vs >y <eyv <r ffs wv rtyv zifffuafix yvrufir v rflu v rtyv  
 d fl t w6d ≤ tvC Twfl w± w-s ≤aw± v >± <3Tvt vs ss <3c-w3vs ≤ew± fl y-3d- wfl M± s a ±±aw± v >± <3vs s wfl w w ys ≤ fl.  
 97986Wafz <40u tr z412Mff v2cv vr ty2rfluentyfls ffx 2Lr z Qu tr z41Nr r d vfi 2suu vfi v v 8687



$\frac{m}{jwx} - D7AD$

c l 5Y 5 f f b  
 f b S d R f d  
 d m m 5B9B98B9BA B9BA8B9BB  
 d x- i y 4j-wy - 4w z f c w z w w  
 X z w w Q: Xk z- j - c h- P w x  
 i x z y j w w j- w h- - y 4A8A87A8A9 w z  
 A8A97A8AA

i ... x 60						
a.zx x x o fl	d..... l fl		i x x l fi		Y x p fi	
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799
/80	/90	/:0	/:0	/<0	/=0	/>0
a<=y -	8	9	4	4	8	9
Ksv—	8	8	8	8	9	9
d†sts≤	4	4	8	8	8	8
U fl	4	4	8	8	8	8
d †sts≤	4	4	4	4	4	4
as≤s≤	8	8	;	;	B	B
e ±±	4	4	8	8	8	8
ds v±	8	8	4	4	8	8
es -s≤Wb fi	4	4	8	8	8	8
d-sz -	4	4	4	4	4	4
T fi≤y	4	4	4	4	4	4
d †sfl	4	4	8	4	8	4
d †sfl Ks s	9	8	9	:	A	A
as s † e t ≤y	4	4	4	4	4	4
Ks	8	8	<	<	C	C
d Psv ≤y	4	4	8	8	8	8
J ≤sfl Mw -	4	4	;	;	A	A
Ks f s s	4	4	4	4	4	4
V s ≤ sfl s	4	4	9	9	9	9
d-s≤ y	4	4	8	8	8	8
j x x j ... x	D	D	9B	9B	:9	:9



Vn" w@n" anor y5M-" ff' ff q anoy : 44

		U <sup>8</sup> φ fi <sup>E</sup>					
a.zx xx o fl	d..... l fl	i x x l fi		Y x p fi			
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799	
/80	/A0	/B0	/870	/880	/890	/8: 0	
a≤s y -	97	;A	4	4	<b>97</b>	<b>AE</b>	
Ksv—	:A	;7	>	B	<b>AB</b>	<b>AF</b>	
d±sts y ≤	4	4	A	B	<b>E</b>	<b>F</b>	
U fl	4	4	87	89	<b>87</b>	<b>89</b>	
d ±sts y ≤	4	4	4	4	<b>4</b>	<b>4</b>	
as≤s≤	;7	;=	;8	←	<b>E8</b>	<b>879</b>	
e ±s	4	4	87	8:	<b>87</b>	<b>8:</b>	
ds v±	; <	;B	4	4	<b>AB</b>	<b>AF</b>	
es -s≤Wb fi	4	4	8>	8<	<b>8D</b>	<b>8B</b>	
d-sz -	4	4	4	4	<b>4</b>	<b>4</b>	
T fi y	4	4	4	4	<b>4</b>	<b>4</b>	
d ±fl	4	4	=	4	<b>C</b>	<b>4</b>	
d ±fl Ks s	;9	9:	8A	:B	<b>C7</b>	<b>C9</b>	
as s t e t y	4	4	4	4	<b>4</b>	<b>4</b>	
Ks	9;	9;	; >	<8	<b>D8</b>	<b>DB</b>	
d Psv y	4	4	;	<	<b>A</b>	<b>B</b>	
J y sfl Mw -	4	4	;8	: =	<b>A8</b>	<b>: C</b>	
Ks f s s	4	4	4	4	<b>4</b>	<b>4</b>	
V s y sfl s	4	4	B	8;	<b>F</b>	<b>8A</b>	
d-s y y	4	4	=	>	<b>C</b>	<b>D</b>	
<b>j x x j... x</b>	<b>97F</b>	<b>9: 7</b>	<b>99A</b>	<b>9CC</b>	<b>A: :</b>	<b>AFC</b>	

Vn" w@n" anor yM-" ff' ffr q anoy : 44

a.zx xx o fl	d..... l fl	c -d		Y x p fi		
9797@798	9798@799	9797@798	9798@799	9797@798	9798@799	
/80	/8;0	/8-0	/8-0	/8A0	/8B0	
a-sy -	97	;A	4	4	97	AE
Ksv—	:A	;7	>	B	AB	AF
d+sts≤	4	4	A	B	E	F
U fl	4	4	87	89	87	89
d +sts≤	4	4	4	4	4	4
as≤s≤	;7	;=	;8	←	E8	879
e ±s	4	4	87	8:	87	8:
ds v±	; <	;B	4	4	AB	AF
es -s≤V6 fi-	4	4	8>	8<	8D	8B
d-sz -	4	4	4	4	4	4
T fi≤	4	4	4	4	4	4
d ±fl	4	4	=	4	C	4
d ±fl Ks s	;9	9:	8A	:B	C7	C9
as s t e t≤	4	4	4	4	4	4
Ks	9;	9;	; >	<8	D8	DB
d Psv ≤	4	4	;	<	A	B
J≤sfl Mw -	4	4	;8	: =	A8	: C
Ks f s s	4	4	4	4	4	4
Vs≤v sfls	4	4	B	8;	F	8A
d-s≤ ≤	4	4	=	>	C	D
jx x j... x	97F	9:7	99A	9CC	A: :	AFC

Ls s s≤y vD 8S fl fi zy wfls ±w sfls wē fi z vs≤y 6eyv s r ffawvrtvy zltffuazlx yvrufir v rflu vrtyv  
d fl t w6d≤ tvC Twfl wē w-s≤l ysfl s3w Rl3vs s wfl w wys≤-f6Wafz sncvfi z≤ K rz 20NSl2su vfi v v

m  
jvx - D7AE

c l 5Y 5 f l f  
i 1fi2 S d i 5  
d 5k 5 m f d  
d m m 5B9B98B9BA B9BA8B9BB  
d x- iy 4j-wy - 4wzf b - i-y zw  
iy k z- j -c Tz yw 4R -4h- -wy 4  
w zj-y x i xz y jw w j- w h- - y 4  
A8A87A8A9 w z A8A97A8AA

		i ... x 60				
a.zx xx o fl	d..... l fl	i x x l fi		Y x p fi		
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799
/80	/90	/:0	/:0	/<0	/=0	/>0
a<=y -	:	:	4	4	:	:
Ksv—	:	:	9	9	B	B
d†sts≤	;	;	8	8	B	B
U fl	;	;	4	4	A	A
d †sts≤	8	8	4	4	8	8
as≤s≤	:	:	;	;	D	D
e ±±	:	:	4	4	:	:
ds v±	9	9	9	9	A	A
es -s≤Vb fi	:	:	9	9	B	B
d-sz -	8	8	8	8	9	9
T fi≤y	;	;	9	9	C	C
d †sfl	;	;	4	4	A	A
d †sfl Ks s	:	:	:	:	C	C
as s † et≤y	:	:	4	4	:	:
Ks	8	8	9	9	:	:
d Psv ≤y	<	<	4	4	B	B
J≤sfl Mw -	:	:	8	9	A	B
Ks f s s	9	9	4	4	9	9
Vs≤ sfls	:	:	:	:	C	C
d-s≤ ≤y	9	9	8	8	:	:
jx x j... x	BD	BD	9A	9B	E8	E9

Vn" w@n" anor y5M-" ff' ff q anoy : 44

U <sup>8</sup> φ fi <sup>E</sup>						
a.zx xx o fl	d..... l fl	i x x l fi	Y x p fi			
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799
/80	/A0	/B0	/870	/880	/890	/8: 0
a↔y -	≧	≧	4	4	DC	DF
Ksv—	A8	≧	98	99	879	FC
d†sts≤	≧	≧	;	:	D:	D:
U fl	≧	≧	4	4	B7	BA
d †sts≤	>	>	4	4	D	D
as≤s≤	B7	B;	≧	≧	8B7	8BD
e ±±	≧	≧	4	4	CB	CB
ds v±	:A	:>	9:	9;	C8	C8
es -s≤Vb ft	≧	≧	8=	8;	EC	E:
d-sz -	8<	8;	87	87	9B	9A
T ftsy	≧	≧	87	88	CC	D7
d †sfl	≧	≧	4	4	CF	C:
d †sfl Ks s	≧	≧	8>	8;	F8	EA
as s † e t y	;;=	;;>	4	4	AC	AD
Ks	::	9B	99	97	BB	AF
d Psv y	A:	≧	4	4	E:	DC
J y sfl Mw -	≧	≧	<	;	DE	D9
Ks f s s	::	::	4	4	::	:A
V s y sfl s	≧	≧	9B	9;	EE	F7
d-s y y	;;	≧	A	;	BB	BB
jx x j... x	88:7	889C	99B	98:	8: BB	8: : F



Vn" w@n" anor y5M-" ff' ff q anoy : 44

		c -d		Y x		
a.zx x x	d.....	i x x				
o fl	l fl	l fi		p fi		
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799
	/80	/8; 0	/8-0	/8=0	/8A0	/8B0
a<=>y -	8 7; =	8 7A=	4	4	8 7AC	8 7EC
Ksv—	8 97A	8 997	99=	98<	8 A: A	8 A: B
d+sts>y ≤	AA:	B9:	B8	⇒	FDA	FF7
U fl	>9<	>8;	4	4	D9B	D8A
d >sts>y ≤	A7	A=	4	4	E7	EC
as<vs≤	8 —B	8 —A>	B; ;	B: :	9 C8:	9 C97
e ±±	A7<	>>A	4	4	E7B	DDE
ds v±	; <A	; A7	: A>	: <7	EAB	E: 7
es >≤V6 fi	A=	A>>	=A	=8	F: 8	F: E
d—sz -	8 <>	8 <9	8>>	8<<	:: A	: 8D
T fi>y	A: 7	A; <	88>	A9	FAD	F9D
d >fl	8 78B	B<	4	4	8 78F	FDB
d >fl Ks s	8 79>	B>	8>B	8=B	8 97C	8 8A9
as s t e t >y	<9:	<9<	4	4	B9:	B9B
Ks	: B<	: BB	9BB	9AA	CFA	CED
d Psv >y	A7;	A79	4	4	E7A	E79
J >sfll Mw -	> >	>8A	89=	988	EC:	F9F
Ks f s s	9A<	9>	4	4	9EB	9DA
V s > sfll s	8 7>>	8 87;	; >	; B7	8 BB8	8 BFA
d—s> >y	>B8	A8=	89<	897	F8C	F: C
j x x j... x	8B: E9	8BA: A	: 98:	: 8B8	8E BFB	8E BEB

Ls s s s >vD \*S fl fsz y wfl s ±±w sfs w±: fsz vs>y Gevy s r ffsvrvtyv zltffuafix yvrufi r v rflu vrtvy  
 d fl t w6d≤ tvC Twfl vs w-s ≤awes v ±s >Tvt vs ss >3c-w3vs ≤ewes fi y-3d- wfl M s a ± ±awes v ±s >vs s wfl w w ys ≤.fi.  
 97986Wafz >Qu tr zfl2M ffi v2cv vr ty2rflu evtyfl s ffx 2Lr z Qu tr zfl Nr r d vfi 2suu vfi v 8687

$\frac{m}{jwx -}$  DATA

c l 5Y 5 f f m  
 f m2 S d R f d  
 d m m 5B9B98B9BA B9BA8B9BB  
 d x- iy 4j-wy - 4wz f c wz ww  
 j w w w Qc j 1k z- j -c h- P w  
 x i xz y jw w j- w h- - y 4A8A87A8A9 w z  
 A8A97A8AA

a.zx xx o fl	d..... l fl		i... x 60 i x x l fi		Y x p fi	
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799
/80	/90	/:0	/;0	/<0	/=0	/>0
a≤s y -	8	8	8	8	9	9
Ksv—	4	4	8	8	8	8
d†sts y ≤	4	4	8	8	8	8
U fl	4	4	9	9	9	9
d †sts y ≤	4	4	4	4	4	4
as≤s≤	4	4	9	9	9	9
e ±±	4	4	8	8	8	8
ds v±	4	4	8	8	8	8
es -s≤Vb fi	4	4	8	8	8	8
d-sz -	4	4	4	4	4	4
T fi s y	4	4	8	8	8	8
d †sfl	4	4	9	9	9	9
d †sfl Ks s	4	4	9	9	9	9
as s † e t s y	4	4	4	4	4	4
Ks	8	8	:	:	A	A
d Psv s y	4	4	8	8	8	8
J s y sfl Mw -	4	4	8	8	8	8
Ks f s s	4	4	4	4	4	4
V s y sfl s	4	4	8	8	8	8
d-s s y	4	4	8	8	8	8
j x x j... x	9	9	99	99	9A	9A



Vn" w@n" anor yBM-" ff' ff' q anoy : 44

a.zx x x o fl		d..... l fl		U <sup>8</sup> φ fi <sup>E</sup> i x x l fi		Y x p fi	
9797@798		9798@799		9797@798		9798@799	
/80		/A0		/870		/890	
a≤s y -	;	<9	87	8<	<b>B:</b>	<b>CD</b>	
Ksv—	4	4	88	8:	<b>88</b>	<b>8:</b>	
d+sts y ≤	4	4	8A	8A	<b>8E</b>	<b>8E</b>	
U fl	4	4	9=	;	<b>9C</b>	<b>: A</b>	
d +sts y ≤	4	4	4	4	<b>4</b>	<b>4</b>	
as≤s≤	4	4	:>	;;	<b>: D</b>	<b>AA</b>	
e ±s	4	4	8<	8<	<b>8B</b>	<b>8B</b>	
ds v±	4	4	8A	8>	<b>8E</b>	<b>8D</b>	
es -s≤V6 fi-	4	4	8>	8<	<b>8D</b>	<b>8B</b>	
d-sz -	4	4	4	4	<b>4</b>	<b>4</b>	
T f s y	4	4	87	B	<b>87</b>	<b>F</b>	
d ±sfl	4	4	9=	8B	<b>9C</b>	<b>8F</b>	
d ±sfl Ks s	4	4	98	9=	<b>98</b>	<b>9C</b>	
as s t e t y	4	4	4	4	<b>4</b>	<b>4</b>	
Ks	=7	<<	99	;8	<b>E9</b>	<b>FC</b>	
d Psv y	4	4	8:	88	<b>8:</b>	<b>88</b>	
J s y sfl Mw -	4	4	8:	8;	<b>8:</b>	<b>8A</b>	
Ks f s s	4	4	4	4	<b>4</b>	<b>4</b>	
V s y sfl s	4	4	87	8<	<b>87</b>	<b>8B</b>	
d-s y y	4	4	8=	8:	<b>8C</b>	<b>8:</b>	
<b>j x x j... x</b>	<b>87:</b>	<b>87D</b>	<b>9E:</b>	<b>:8F</b>	<b>: EC</b>	<b>A9C</b>	



Vn" w@n" anor y5M-" ff' ff' q anoy : 474

a. zX x x o fl		d..... l fl		c -d i x x l fi		Y x p fi	
9797@798		9798@799		9797@798		9798@799	
/80		/8; 0		/8<0		/8A0	
a-s&y -	; <	; 7:	8>=	9; B	C: :	CB9	
Ksv—	4	4	A7	87>	E7	87D	
d±sts&y ≤	4	4	;	9: 8	A	9: 8	
U fl	4	4	; 9=	; <9	A9C	AB9	
d ±sts&y ≤	4	4	4	4	4	4	
as&vs≤	4	4	; =8	; >=	AC8	ADC	
e ±±	4	4	88;	87:	88A	87:	
ds v±	4	4	8: A	89<	8: E	89B	
es -s≤V6 fi-	4	4	9<=	9: 8	9BC	9: 8	
d-sz -	4	4	4	4	4	4	
T f&y	4	4	8<	8<	8B:	8BD	
d ±fl	4	4	9A8	: 7B	9E8	: 7F	
d ±fl Ks s	4	4	98=	8B8	98C	8F8	
as s ± e t-±	4	4	4	4	4	4	
Ks	;;;	; 9B	9<=	9=;	D7F	CF:	
d Psv &y	4	4	;;	; <	AA	AB	
J ±sfl Mw -	4	4	87A	87>	87E	87D	
Ks f s s	4	4	4	4	4	4	
V s± sfl s	4	4	8; A	8>	8AE	8D7	
d-s± &y	4	4	8A:	8>8	8E:	8D8	
<b>j x x j... x</b>	<b>F78</b>	<b>E: 9</b>	<b>: 7B:</b>	<b>: : EE</b>	<b>: FBA</b>	<b>A 997</b>	

Ls s s s y ≤ vD °S fl f s z y wfl s ±±w s f s w± f s z v s ±y 6eyv ≤ r f f s v r v t y v z i t f f u d l x y v r u f i v v r f l u v r t y v  
d fl t w d ≤ t v C T w f l w s w s ≤ j s f l s 3 N R i 3 v s s w f l w w y s ≤ f 6 W d f z ± x v f z z K r z 2 O N S d z s u w v f i v v

m  
jwx - D7AG

c l 5Y 5 f l f R  
 1 f R2 S d i 5d 5  
 k 5 m f d d  
 m m 5B9B98B9BA B9BA8B9BB  
 d x- iy 4j-wy - 4w z f k - i-y zw  
 iy k z- j -c Tz yw 4R -4h- -wy 4  
 w z j-y x i xz y jw w j- w h- - y 4  
 A8A87A8A9 w z A8A97A8AA

a.zx xx o fl	i... x 60					
	d..... l fl		i x x l fi		Y x p fi	
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799
/80	/90	/:0	/:0	/->	/=>	/>0
a<=>y -	8	8	4	4	8	8
Ksv—	4	4	8	8	8	8
d+sts<=> ≤	8	8	4	4	8	8
U fl	4	4	4	4	4	4
d <sts>y ≤	4	4	4	4	4	4
as<=>s≤	8	8	9	9	:	:
e ±±	9	9	4	4	9	9
ds v±	4	4	8	8	8	8
es -s≤V6 ft	4	4	4	4	4	4
d-sz -	8	8	4	4	8	8
T f<=>y	8	8	4	4	8	8
d <=>fl	8	8	4	4	8	8
d <=>fl Ks s	8	8	8	8	9	9
as s t e t<=>y	8	8	4	4	8	8
Ks	8	8	8	8	9	9
d Psv <=>y	8	8	4	4	8	8
J<=>sfl Mw -	8	8	4	4	8	8
Ks f s s	4	4	4	4	4	4
Vs<=> sfls	8	8	9	9	:	:
d-s<=> <=>y	8	8	8	8	9	9
jx x j... x	8B	8B	F	F	9A	9A

Vn" w@n" anor y5M-" ff' ff q anoy : 44-

U <sup>o</sup> φ fi <sup>E</sup>						
a.zx xx o fl	d..... l fl		i xx l fi		Y x p fi	
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799
/80	/A0	/B0	/870	/880	/890	/8: 0
a<=y -	<8	<7	4	4	<b>B8</b>	<b>B7</b>
Ksv—	4	4	87	>	<b>87</b>	<b>D</b>
d+sts y ≤	;=	;B	4	4	<b>AC</b>	<b>AF</b>
U fl	4	4	4	4	<b>4</b>	<b>4</b>
d +sts y ≤	4	4	4	4	<b>4</b>	<b>4</b>
as≤s≤	>9	>8	9=	9<	<b>FE</b>	<b>FC</b>
e ±±	>B	>B	4	4	<b>DF</b>	<b>DF</b>
ds v±	4	4	=	<	<b>C</b>	<b>B</b>
es -s≤Wb fi	4	4	4	4	<b>4</b>	<b>4</b>
d-sz -	8A	8=	4	4	<b>8E</b>	<b>8C</b>
T fi y	::	: =	4	4	<b>::</b>	<b>: C</b>
d ±fl	9=	9A	4	4	<b>9C</b>	<b>9E</b>
d ±fl Ks s	<7	;A	;	8	<b>BA</b>	<b>AF</b>
as s t e t y	8;	8<	4	4	<b>8A</b>	<b>8B</b>
Ks	:A	:B	B	>	<b>AD</b>	<b>AC</b>
d Psv y	9<	9>	4	4	<b>9B</b>	<b>9D</b>
J ±sfl Mw -	::	:>	4	4	<b>::</b>	<b>: D</b>
Ks f s s	4	4	4	4	<b>4</b>	<b>4</b>
V s ± sfl s	9B	:<	8;	8=	<b>A:</b>	<b>B8</b>
d-s ± y	98	98	B	B	<b>: 7</b>	<b>: 7</b>
<b>j x x j... x</b>	<b>B: B</b>	<b>BB8</b>	<b>DE</b>	<b>D7</b>	<b>C8:</b>	<b>C98</b>



Vn" w@n" anor y5M-" ff' ff q anoy : 44-

a.zx xx o fl		d..... l fl		c -d i x x l fi		Y x p fi	
9797@798		9798@799		9797@798		9798@799	
/80		/8; 0		/8=0		/8A0	
a<=>y -	B7:	B;<	4	4	F7:	FAB	
Ksv—	4	4	;=	=>	AC	C7	
d+sts>y ≤	>7	=>A	4	4	D: 7	CDE	
U fl	4	4	4	4	4	4	
d +sts>y ≤	4	4	4	4	4	4	
as>vs≤	89;>	89<8	:7<	9<	8 BA9	8 B8C	
e ±s	89>=	89<	4	4	8 9DC	8 9CB	
ds v±	4	4	A=	A<	EC	EB	
es -s≤Wb ft	4	4	4	4	4	4	
d-sz -	989	98;	4	4	989	98A	
T fs>y	<A9	<BB	4	4	BE9	BFF	
d ±sfl	9AA	:8=	4	4	9EE	:8C	
d ±sfl Ks s	A=>	AA=	>B	>A	F: F	FCA	
as s t e t >y	997	9: A	4	4	997	9: E	
Ks	=>	=A8	8;<	89;	E8E	E7B	
d Psv >y	:B7	:B;	4	4	: F7	: FA	
J >sfll Mw -	=>9A	=>A	4	4	C9E	CCE	
Ks f s s	4	4	4	4	4	4	
V s >v sfl s	<:	<9	;77	;87	F: :	FA9	
d-s> >y	9B>	9A>	89>	8: :	A9A	A97	
j x x j... x	E E9F	E FBA	8 8EE	8 8BB	87 78D	87 87F	

Ls s s s >vD \*S fl fsz y wfl s ±w sfs w± fsz vs>y Gevv s r ffs vrvtyv zltffuadzix yvrufi r v rflu vrtyt  
 d fl t w b d s tvC Twfl w s w s ≤ a w s v v ± s ≤ T v t vs s s ≤ c - w 3 v s ≤ e w s ≤ fi y - 3 d - wfl M s a ± ± a w s v v ± s ≤ v s w fl w w y s ≤ fi  
 97986 W f l z s > Q u tr z s l 2 M f f i v 2 c v r ty 2 r flu e v ty fl s f f z 2 L r z Q u tr z s l N r r d v fi 2 s u u v f i v 8 6 8 7

m  
jwx - D7AH

c l 5Y 5 f l f  
d 1 f d2 S d i 5  
d 5k 5 m f d  
d m m 5B9B98B9BA B9BA8B9BB  
d x- i y 4j-wy - 4w z f l yw w W  
i y k z- j -c Tz yw 4R -4h- -wy 4  
w z j-y x i xz y jw w j- w h- - y 4  
A8A87A8A9 w z A8A97A8AA

i ... x 60						
a.zx x x o fl	d..... l fl		i x x l fi		Y x p fi	
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799
/80	/90	/:0	/:0	/->	/=>	/>0
a<=y -	4	4	4	4	4	4
Ksv—	8	8	4	4	8	8
d†sts≤	4	4	4	4	4	4
U fl	8	8	4	4	8	8
d †sts≤	4	4	4	4	4	4
as≤s≤	4	4	;	;	A	A
e ±±	4	4	4	4	4	4
ds v±	8	8	4	4	8	8
es -s≤V6 ft	8	8	8	8	9	9
d-sz -	4	4	4	4	4	4
T fisy	4	4	4	4	4	4
d †fl	8	8	8	8	9	9
d †fl Ks s	4	4	8	8	8	8
as s † et≤	4	4	4	4	4	4
Ks	4	4	4	4	4	4
d Psv ≤	8	8	4	4	8	8
J≤sfl Mw -	4	4	8	8	8	8
Ks f s s	8	8	4	4	8	8
Vs≤ sfls	8	8	8	8	9	9
d-s≤ ≤	8	8	9	9	:	:
jx x j... x	F	F	88	88	97	97



Vn" w@n" anor y5M-" ff' ffr q anoy : 44

a.zx x x o fl	d..... l fl		U 8φ fi <sup>ε</sup> i x x l fi		Y x p fi	
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799
/80	/A0	/B0	/870	/880	/890	/8: 0
a→s y -	4	4	4	4	4	4
Ksv—	::	::	4	4	A:	AA
d→sts y ≤	4	4	4	4	4	4
U fl	=	×	4	4	C:	DB
d →sts y ≤	4	4	4	4	4	4
as→s≤	4	4	◇	◇	BD	B9
e ±s	4	4	4	4	4	4
ds v±	: =	: >	4	4	: C	: D
es -s≤W6 fi-	9:	99	<	<	9E	9D
d→sz -	4	4	4	4	4	4
T fi→y	4	4	4	4	4	4
d →sfl	9=	9>	A	87	: A	: D
d →sfl Ks s	4	4	::	9;	A:	9A
as s † e t→y	4	4	4	4	4	4
Ks	4	4	4	4	4	4
d Psv →y	9>	9<	4	4	9D	9B
J→sfl Mw -	4	4	89	>	89	D
Ks f s s	8A	98	4	4	8E	98
V s→sfl s	9:	9=	:	87	9C	: C
d→s→y	::	: 9	87	87	A:	A9
j x x j... x	9F9	: 7F	8: E	88E	A: 7	A9D

Vn" w@n" anor yM-" ff' ffr q anoy : 44

a.zx x x o fl	d..... l fl		c -d i x x l fi		Y x p fi	
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799
/80	/8; 0	/8<0	/8=0	/8>0	/8A0	/8B0
a-sy -	4	4	4	4	4	4
Ksv—	>79	>77	4	4	D79	D77
d†sts≤	4	4	4	4	4	4
U fl	8:78	8;<A	4	4	8:78	8 ABE
d †sts≤	4	4	4	4	4	4
as≤s≤	4	4	8; B8	8: B9	8 AF8	8: F9
e ±s	4	4	4	4	4	4
ds v±	; <A	; <7	4	4	ABE	AB7
es -s≤Wb fi-	9: >	9<8	8; B	87A	: EC	: BF
d-sz -	4	4	4	4	4	4
T fi≤y	4	4	4	4	4	4
d †fl	<8A	<88	8: 9	89A	CB7	C: F
d †fl Ks s	4	4	=;	←B	CAA	BCF
as s † et≤y	4	4	4	4	4	4
Ks	4	4	4	4	4	4
d Psv ≤y	9>8	9A:	4	4	9D8	9E:
J≤sfl Mw -	4	4	>B	←	DF	BC
Ks f s s	9: >	987	4	4	9: D	987
V s≤y sfl s	: 9<	9AB	8: :	89;	ABE	A8:
d-s≤y ≤y	: >	: A9	979	999	BDE	C7A
jx x j... x	AA9B	AB: A	9 E: 7	9 BFF	D9BB	D8: :

Ls s s≤y≤vD 8P s≤y fl w s y s.v-9 w e f i z s s f i t z v z - ≤y v f l s -y f l s -y w e f i z s s f l f i z y w f l s ±w s f i  
w e f i z v s y s e y v v r t y v y s ≤x y d l ≤ t y s s f l s f i s v t ≤ f l v u d l v v t y s s f i e y v s r f i s w v r t y v d l f f u d l x  
y v r u f i r v r f l u v r t y v

d fl t w d ≤ t v C T w f l w s w s a w s v - s s t v t v s s s c - w 3 v s s e w s f i y 3 d - w f l M s a ± a w s v - s s s v s w f l w w y s ≤ f i.  
97986W d i z s u t r z s i 2 M f f i v 2 c v r t y 2 r f l u e v t y f l s f i x 2 l r d t u t r z s i l r r d v f i 2 s u v f i v v 8687

$\frac{m}{jwx -}$  D7A7

c l 5Y 5 f f R f R2  
 S d R f d  
 d m m 5B9B98B9BA B9BA8B9BB  
 d x- i y 4j-wy - 4w z f c w z w w P w  
 Q P1k z- j -c h- P w x i xz y  
 j w w j- w h- - y 4A8A87A8A9 w z A8A97A8AA

a.zx x x o fl	i ... x 60					
	d..... l fl		i x x l fi		Y x p fi	
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799
/80	/90	/:0	/:0	/<0	/=0	/>0
a≤s y -	4	4	8	8	8	8
Ksv—	4	4	8	8	8	8
d±sts y ≤	4	4	8	8	8	8
U fl	4	4	9	9	9	9
d ±sts y ≤	4	4	4	4	4	4
as≤s≤	8	8	4	4	8	8
e ±s	4	4	4	4	4	4
ds v±	4	4	8	8	8	8
es -s≤Wb fi	4	4	8	8	8	8
d-sz -	4	4	4	4	4	4
T f s y	4	4	8	8	8	8
d ±sfl	4	4	4	4	4	4
d ±sfl Ks s	8	8	8	8	9	9
as s t e t y	4	4	4	4	4	4
Ks	8	8	4	4	8	8
d Psv y	4	4	4	4	4	4
J ≤sfl Mw -	4	4	8	8	8	8
Ks f s s	4	4	4	4	4	4
V s y sfl s	4	4	8	8	8	8
d-s y y	4	4	8	8	8	8
j x x j ... x	:	:	89	89	8B	8B



Vn" w@n" anor yBM-" ff' ff' q anoy : 4B

U <sup>8</sup> φ fi <sup>E</sup>							
a.zk x x o fl	d..... l fl	i x x l fi	Y x p fi				
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799	
/80	/A0	/B0	/870	/880	/890	/8: 0	
a<=y -	4	4	8>	8>	<b>8D</b>	<b>8D</b>	
Ksv—	4	4	B	8:	<b>F</b>	<b>8:</b>	
d+sts≤	4	4	89	8;	<b>89</b>	<b>8A</b>	
U fl	4	4	8A	99	<b>8E</b>	<b>99</b>	
d +sts≤	4	4	4	4	<b>4</b>	<b>4</b>	
as≤s≤	;;	:B	4	4	<b>AA</b>	<b>:F</b>	
e ±b	4	4	4	4	<b>4</b>	<b>4</b>	
ds v±	4	4	B	8<	<b>F</b>	<b>8B</b>	
es -s≤Vb fi-	4	4	87	B	<b>87</b>	<b>F</b>	
d-sz -	4	4	4	4	<b>4</b>	<b>4</b>	
T fb≤y	4	4	B	88	<b>F</b>	<b>88</b>	
d ±fl	4	4	4	4	<b>4</b>	<b>4</b>	
d ±fl Ks s	:A	;=	A	A	<b>AC</b>	<b>BA</b>	
as s t e t≤y	4	4	4	4	<b>4</b>	<b>4</b>	
Ks	<8	=8	4	4	<b>B8</b>	<b>C8</b>	
d Psv ≤y	4	4	4	4	<b>4</b>	<b>4</b>	
J≤sfl Mw -	4	4	=	>	<b>C</b>	<b>D</b>	
Ks f s s	4	4	4	4	<b>4</b>	<b>4</b>	
Vs≤y sfl s	4	4	89	8=	<b>89</b>	<b>8C</b>	
d-s≤y ≤y	4	4	88	8:	<b>88</b>	<b>8:</b>	
<b>jx x j... x</b>	<b>8::</b>	<b>8AC</b>	<b>898</b>	<b>8AB</b>	<b>9BA</b>	<b>9F8</b>	



Vn" w@n" anor yBM- " ff' ff' q anoy : 4B

a.zx xx o fl	d..... l fl		c -d i xx l fi		Y xx p fi	
	9797@798	9798@799	9797@798	9798@799	9797@798	9798@799
/80	/8; 0	/8<0	/8=0	/8>0	/8A0	/8B0
a<=s>y -	4	4	B>	AA	FD	EE
Ksv—	4	4	97	: 8	97	: 8
d+sts>y ≤	4	4	BB	A8	FF	E8
U fl	4	4	9; 7	: 77	9A7	: 77
d >sts>y ≤	4	4	4	4	4	4
as<=s>≤	<89	; >	4	4	B89	AC7
e ±s	4	4	4	4	4	4
ds v ±	4	4	87	9;	87	9A
es -s≤Vb fi-	4	4	88=	B9	88C	F9
d-sz -	4	4	4	4	4	4
T fs>y	4	4	A<	AA	EB	EE
d >fl	4	4	4	4	4	4
d >fl Ks s	; <=	; >	8<	8=	AD8	AB:
as s t e t >y	4	4	4	4	4	4
Ks	=9>	=A<	4	4	C9D	CEB
d Psv >y	4	4	4	4	4	4
J >sf l Mw -	4	4	; 9	=>	A9	CD
Ks f s s	4	4	4	4	4	4
V s > sf l s	4	4	8: =	88:	8: C	88:
d-s> >y	4	4	8<	8>	8CB	8B7
<b>j x x j... x</b>	<b>8 BFB</b>	<b>8 BE9</b>	<b>8 79B</b>	<b>8 7B7</b>	<b>9 C97</b>	<b>9 C: 9</b>

Ls s s s > y v D 8 S fl fs z y w fl s ± w s f b w ± fs z vs > y 6eyv < r f f s v r v r y v z i t f f u a d l x y v r u f i r v r f l u v r t y v  
d fl t w d <= tvC Tw fl w s w s <= j y s fl s 3N R l 3 v s s w fl w w y s <= f b w d l z <= x v d z z K rz 20MS d z s u w v f i v v

m  
jwx - D7A9

c U Ad f W  
l f d m i  
d m m 5B9AI 6B9BA  
d x- l w - 97a- w w Ww Tz yw w  
Uwy - x i xz y w z Tz yw w b- - j w w  
j- w h- - y 4A89H5A8A9

a.zx x x o fl	978F	i R l f i o 9797	9798
/80	/90	/;0	/;0
a-sy -	B	B	B
Ksv—	B	B	B
d+sts ≤	>	>	>
U fl	=	=	=
d +sts ≤	;	;	;
as ≤s ≤	8;	8;	8;
e ±s	A	A	A
ds v ±	;	;	;
es -s ≤V6 fi-	>	>	>
d-sz -	=	=	=
T fi ≤	8;	8;	8;
d ±fl	8B	8B	8B
d ±fl Ks s	88	88	88
as s ± e t ≤	B	B	A
Ks	8:	8:	8:
d Psv ≤	B	B	B
J ≤sfl Mw -	8;	8;	8;
Ks f s s	=	=	=
V s ≤ sfl s	8B	97	97
d-s ≤ y	A	A	A
jx x j... x	8FC	8FD	8FC



Vn" w@n" anor yM- " ff' ff q anoy : 4/46

a.zk x x o fl	ic f f d o		
	978F	9797	9798
/80	/<0	/->	/>0
a-sy -	9	9	9
Ksv—	:	:	:
d†sts≤	;	;	;
U fl	:	:	:
d †sts≤	8	8	8
as≤s≤	>	>	A
e ±s	:	:	:
ds v±	:	:	:
es -s≤V6 fi-	:	:	:
d-sz -	9	9	9
T fi-sy	>	>	>
d †sfl	<	<	<
d †sfl Ks s	:	:	:
as s † e t-sy	:	:	:
Ks	<	<	<
d Psv sy	;	;	;
J-sfl Mw -	<	<	=
Ks f s s	9	9	9
Vs-sy sfls	=	=	=
d-s-sy	:	:	:
jx x j... x	DA	DA	DC

Vn" w@n" anor yM-'' ff' ff q anoy : 446

a. zX x x o fl	i c N o d o		
	978F	9797	9798
/80	/A0	/B0	/870
a-sy -	9	9	9
Ksv—	8	9	:
d+sts≤	8	8	8
U fl	8	8	8
d +sts≤			
as≤s≤	;	;	;
e ±s	9	9	9
ds v±	8	8	8
es -s≤V6 fi-	8	8	8
d-sz -	8	8	8
T fsy	9	9	9
d ±fl	8	8	8
d ±fl Ks s	9	9	9
as s ± e t-y	8	8	8
Ks	9	9	9
d Psv y	8	8	8
J-sfl Mw -	9	9	9
Ks f s s			
Vs-y sfls	:	:	:
d-s-y y	9	9	9
<b>jx x j... x</b>	<b>:7</b>	<b>:8</b>	<b>:9</b>



Vn" w@n" anor yM- " ff' ff' q anoy : 4/46

a.zk x x o fl	i c a r f i f i o		
	978F	9797	9798
/80	/880	/890	/8: 0
a-≤y -	8	8	8
Ksv—	8	8	8
d†sts≤			
U fl			
d †sts≤			
as≤s≤	:	:	;
e ±s			
ds v±	8	8	8
es -s≤V6 fi-	8	8	8
d-sz -			
T fi≤y			
d †sfl	9	9	9
d †sfl Ks s	8	9	9
as s † e t≤y			
Ks			
d Psv ≤y	8	8	8
J≤sfl Mw -	8	8	8
Ks f s s	8	8	8
Vs≤y sfls	9	9	9
d-s≤y ≤y	:	:	:
<b>jx x j... x</b>	<b>8E</b>	<b>8F</b>	<b>97</b>

Vn" w@n" anor yBM-'' ff' ff q anoy : 4/46

a.zx x x o fl	978F	f... x j q 9797	9798
/80	/8; 0	/8-0	/8-0
a-sy -			
Ksv—			
d+sts≤			
U fl			
d +sts≤			
as≤s≤	:	:	<
e ±s	8	8	8
ds v±	9	9	9
es -s≤V6 fi-			
d-sz -			
T fsy			
d ±fl			
d ±fl Ks s			
as s ± e t-y			
Ks	9	9	8
d Psv y			
J-sfl Mw -			
Ks f s s			
Vs-sfl s			
d-s-y			
jx x j... x	E	E	F

$l s s \leq v c$      $^8 Mws svs stw \leq wfl s \pm \leq awfl \pm fl s \leq e s \leq fl y s -f ae0 s y fl s z v t -s f v z \pm vl w s w s \leq w s -v s \leq$   
 $s y s -v a \leq -d fl s w s Ks s$   $gaffix \pm yz r s f i t t f u v e r f i f i x r z s l d v f f i v l f f l z y z y z f f i s v v u s$   
 $y v v f i r f i f i z z v r f l u y v f i x r z s l y v a \leq z l v -s d f i r v r L r$   
 $d f l t w d \leq t v c$      $Kad3 a w s s s a w s -M w s / a v w 0 6 L a d 3 d r z z \pm f l u -s l v z 2 g a f f i x v a \leq v l x f i f i r r M s f f i z s l$

$\frac{m}{jwx} -$  DATA

i i S A9 m d R f  
 i l c d d  
 m m 5B9B9 B9BA  
 f- y- w- f w 98 o-w P -w z e - x  
 iy fw y w w z i- jw w j- w  
 h- - y 4A8A8 w z A8A9

$f_x$ o	$x$ l	$i \dots x$ f i	$b_x$ i	$4_x$ f i	$f \dots x$ b f i	$Y$ p	$x$ f i	
			9797	9798	9797	9798	9797	9798
/80			/90	/:0	/;0	/<0	/=0	/>0
e-vs ±dkwfi fl aw ≤z dw± fsz $Y \leq dty \leq f i x S Y \leq j v K v f l u z f i x$ $dty \leq f i a f i r dty \leq f i$			; 9=	837	<3-9	93 A	AFA	8EF
V s -z dw± fsz $d f f k v f l u z f i x dty \leq f i$			: 3-8	9-3:	:: 3=	9>3;	: B3C:	9C3EA
e-vs ±dw± fsz U s y- $Y \leq K v f l u z f i x dty \leq f i k f i f i \leq v$			<B3:	>93 >	<B3-9	>73B	BF3A:	D83D
$Y$	$x$	$\phi$	f i	87737	87737	87737	87737	87737

d fl t w 6 d ≤ tvC Kad3d w-d -s f i n ± ≤ fl -V6 -s s f i /d w s 0 6 L a d 3 f r z z s f l u s f l v x 2 Y r z s f r f i s z y t s f i s i z d v



**m**  
jwx - **DATAB**

i i f l f  
d n c d d m  
m 5B9B9 B9BA  
f-y- w- f w P-z iy x P-V  
w z i- jw w j- w h- - y 4A8A8 w z A8A9

a... k	Y... a..x o		Y x			
U c	bx 4bx	f.... x	p fi			
	9797	9798	9797	9798		
/80	/90	/:0	/;0	/<0		
>4 89	BA3A:	877377	877377	877377	FF3 E	877377
8: 4 8<	BA3 8	BA3A:	BA3D;	B>3=	FE3 :	FE3DC
8=4 8A	A83B9	>3>7	B73>7	B>3<	EB3E7	EC3CE
8B 4 9;	8B3A	8; 3 7	993 9	9; 3<	973C	8E3FE
>4 8<	BA3>7	BB3 9	BB3 <	BA3AA	FF37B	FF3BC
>4 9;	>3<	=3 B	>B3;	>3<	DE377	D8388

d fl t w6d ≤ tvC Kad3d w-d -sfnt ≤ fl -w6 -sfv/d w6 06L ad3d r z z 5flu3lv z 2Yr z3lr fl3 zsr3-3i3 z d v

$\frac{m}{jwx -}$  **DATA**      i      i      S      A9 m      d R      f  
 l      i      d      m      m      5B9B9  
**B9BA**  
 f - y - w - f      w      98 o - w      P - w z e - x  
 Tz yw      i w      jw w      j - w h - - y 4A8A8 w z  
**A8A9**

i x f...- x a fi o fi	9797	9798
/80	/90	/:0
e-vs ±d(vfi fl aw±sz dwt±fisz Yv v 6Y≤ jv K vfluazlx dty≤±ffi	73A=	93 A
V s -z dwt±fisz d zffk vfluazlx dty≤±ffi		
dV6V R6dw w s . a z i r dty≤±ffi	87B;	A3A=
dV a6V e 6dw w s . V≤ v dvt±flur dty≤±ffi	B3 >	A37
dV J 6dV T6V J 6dw w s . f v dvt±flur dty≤±ffi	⇒7	⇒A:
M- fi fl s6ds s.±s Nz f6fi r 5f flz v z Q r u r v u	: 39	: 3 ;
e-vs ±dvt±fisz U±y- Y≤ K vfluazlx dty≤±ffi fi v	=B3 8	>73A
<b>Y x 6p fi</b>	<b>87737</b>	<b>87737</b>

d fl t w6d± tvC Kad3d w-d ±fint±≤ fl -V6 -±fivd w± 06L ad3d r z z fl u±flv ± 2Yr z±ir f6±±z±r±±i±±i z d v

**m**  
**jwx -**

**i i S A9 m R f**  
**b 8 mm6 m U c d**  
**d m m 5B9B9 B9BA**  
**f- y- w- f w 98 -w P -w z e - x**  
**R- yw- P w - w z i- jw w j- w**  
**h- - y 4A8A8 w z A8A9**

Wk x 6jj0j... W fi U fi	bx 4x i fi	f..... x b fi	Y x p fi
/80	/90	/:0	/:0
e-vs±6Kvñ fl aw±sz dwt± fsz Yv v 6 Y≤jv K vflu±dx dty≤ffi	73A=	837	93 <
e-vs±6Kvñ fl es fl s dM Yv v 5Y≤jv ar ±lix a ±ir dty≤ffi	993>	8>9B	993B;
dM6V fcdw w s . a ±ir dty≤ffi	9: 3>	9: 3A<	9: 3B
dV a6V e 6dw w s . V≤ v dvt±flur dty≤ffi	983B	993>	9939
dV J 6V J 6dw w s . f v dvt±flur dty≤ffi	9737	9: 3>	8A3-B
dV T g±r ±flr fflty≤ffi	<3;	<3 :	93>>
M-fi fl s R- RR Nz fflr r S, S	73B	73<	739
M-fi fl s RR Nz fflr r SS	73A8	73>	83=
M-fi fl s Ry6awy s≤e±yy- Nz fflr r S±f flz v z Q ru r vu	<3A	<3<	=3;
<b>Y x 6 p fi</b>	<b>87737</b>	<b>87737</b>	<b>87737</b>

d fl t w6± tvC Kad3d w-d ±flnt± fl -V6 -±flvd w± 06L ad3d r r z ± flur ±lv ar 2Yr ±flr ffl ±z±r ±fl ±fl ± d v

$\frac{m}{jwx -}$  DATAE

i i S A9 m d R f  
 d f f d  
 m m 5B9B9 B9BA  
 f- y- w- f w 98 o-w P -w z e - x  
 b - wy jw w j- w h- - y 4A8A8 w z A8A9

a...x x c...yxzx-x c... h fi	9797	9798
/80	/90	/:0
Q x Us ≤ W z W v	BA3=	BA37
Q x J st K rs z W v	973=	8<3 <
Q x Us ≤≤s Z yv W v	837;	73A
V vvt±Q x lzvrt	BA3>	BA37
K s Q x stivrt	83=	837

d fltw6d≤ tvC Kad3d wd -sfiN± ≤ n -W6 -sfi/d ves 06Lad3d r z z 9lu<lv z 2Yr z sllr ffl±zst<fif z d v

<https://tapahtingahkab.ops.go.id>

**m**  
j w x -

**D7A7AF**

**m f a f d n**  
**d m m 5B9B9 B9BA**  
**b - wy hw- f w x P - V j w w**  
**j- w h- - y 4A8A8 w z A8A9**

a... k	9797	9798
U c	/90	/: 0
87 48;	87737	B=AB
8<49;	87737	BB3<<
9<4; 7	BB3 9	BB3 A
; 8 4⇒	B>B8	B>37
⇒2	B838:	B: 37

d fl t w6d≤ tvC Kad3d w-d -sfnt± ≤ fl -V6 - -sfiv/d ves 06L ad3d r z z sflu-slv x 2Yr z sflr ffl-szst-sf-sf d v

<https://tapanulitengab.go.id>

$\frac{m}{jwx} - \text{DATA}$

R i f R i f 2 R i  
 d Ri d2f c i c  
 d d m m 5B9B9 B9BA  
 d- T - - hw-w z V T - - hw-x  
 Tz yw b- - jw w j- w h- - y 4A8A8 w z A8A9

Y...x f...-- x a fi h	N xfx x c /Nf c 0 j lfi fi nfi	N xfx x ax x /Nf a 0 c lfi fi nfi
/80	/90	/:0
dN6V R6dw w s . a fir dt y ≤ ffi	BB3 >	BB3/B
dV a6V e 6dw w s . V ≤ v dt v flur dt y ≤ ffi	AA3 >	AA3/8
dV J 6dV T 6V J 6dw w s . f v dt v flur dt y ≤ ffi	>3/B	>3/B
awy s ≤ e ≤ y - f flz v z Q r u r vu	8 > BB	9 < 3 <

d fl t w 6 d ≤ tvC Kad3d w-d -s fi n t ≤ fl -W6 -s fv/d ves 06L ad3d r z z fl u s ilv z 2Yr z s ir fl s z s vt s i s i z d v

<https://itapal.kemahkab.bpt.go.id>

DB

dVI Va RnRg  
WTPbj W

m  
jvx - DBA c U A&d s f l d  
f d d m m 5B9AI  
6B9BA  
d x- l w - 97a- w w Ww W-w Uwy - x  
i xz y jw w j- w h- - y 4A89H5A8A9

a.zx x x o fl	978F	9797	9798
/80	/90	/:0	/:0
a-sy -			
Ksv—			
d+sts ≤			
U fl			
d sts ≤			
as ≤s ≤	8	8	8
e ±s			
ds v ±			
es -s ≤V6 fr			
d-sz -			
T fs			
d ±fl			
d ±fl Ks s			
as s t e t			
Ks			
d Psv			
J-sfl Mw -			
Ks f s s			
V s sfl s			
d-s			
jx x j... x	8	8	8



Vn" w@n" anor y5M-" ff' ff q anoy : 47

a.zx x x o fl	978F	h x ix 0...x i fi d fi 9797	9798
/80	/<0	/<0	/>0
a-sy -			
Ksv—			
d+sts ≤			
U fl			
d sts ≤			
as ≤s ≤			
e ±s			
ds v ±			
es -s ≤V6 fi			
d-sz -			
T fsy			
d stl			
d stl Ks s			
as s t e t sy			
Ks			
d Psv sy			
J sy sfl Mw -			
Ks f s s			
V s sy sfl s			
d-s sy			
<b>jx x j... x</b>			



Vn" w@n" anor ySM- " ff' ff q anoy : 47

a.zx x x o fl	978F	9797	9798
/80	/A0	/B0	/870
a-sy -	9	9	9
Ksv—	8		
d+sts≤			
U fl			
d +sts≤			
as≤s≤	:	<	<
e ±s	9	8	8
ds v±	9	9	9
es -s≤V6 fi			8
d-sz -			
T fsy	8	9	8
d ±fl			
d ±fl Ks s	8	8	8
as s t e t-y			
Ks			
d Psv y			
J-y/fl Mw -	9	9	9
Ks f s s			
V s-y/fl s	9	9	8
d-s-y y			
jx x j... x	8C	8D	8C



Vn" w@n" anor ySM- " ff' ff q anoy : 47

a.zx x x o fl	f ... x l fl d fi W		
	978F	9797	9798
/80	/880	/890	/8: 0
a-≤y -	8	8	8
Ksv—	8	8	8
d†sts≤	8	8	8
U fl	8	8	8
d †sts≤	8	8	8
as≤s≤	9	9	9
e ±s	8	8	8
ds v±	8	8	8
es -s≤V6 fi	8	8	8
d-sz -	8	8	8
T fi≤	8	8	8
d †fl	9	9	9
d †fl Ks s	8	8	8
as s † e t≤	8	8	8
Ks	9	9	9
d Psv ≤	8	8	8
J≤sfl Mw -	9	9	9
Ks f s s	8	8	8
V s≤ sfl s	9	9	9
d-s≤ ≤	8	8	8
<b>j x x j ... x</b>	<b>9B</b>	<b>9B</b>	<b>9B</b>

Vn" w@n" anor ySM- " ff' ff q anoy : 47

a.zx x x o fl	f ... x f...yx o fl fi l fl d fi W		
	978F	9797	9798
/80	/8; 0	/8<0	/8=0
a-sy -	;	<	<
Ksv—	;	<	<
d+sts≤	<	<	>
U fl	;	:	;
d sts≤	8		
as≤s≤	:	:	:
e ±s	;	;	;
ds v±	:	:	:
es -s≤V6 fi	8	8	8
d-sz -	8	8	
T fsy	=	B	>
d stfl	<	<	=
d stfl Ks s	:	;	:
as s t e t-y	9	9	9
Ks	<	<	9
d Psv sy	<	=	
J-sfl Mw -	;	=	=
Ks f s s	:	8	8
Vs-sfl s	8	=	:
d-sy sy	<	>	>
jx x j... x	CF	E8	CF



Vn" w@n" anoy 5M- " ffr q anoy : 47

a.zx x x o fl	N ... l f i f i		
	978F	9797	9798
/80	/8>0	/8A0	/8B0
a-s>y -	8	8	8
Ksv—			
d-tsts>y ≤			
U fl			
d -sts>y ≤			
as>s≤	:	;	:
e ±s			
ds v±	8	8	
es -s≤V6 fi-	8	8	8
d-sz -	8		
T fi>y			
d -sfl			
d -sfl Ks s			
as s t e t->			
Ks	:	:	:
d Psv >y			
J>sfl Mw -			
Ks f s s			
V s> sfl s	8	8	8
d-s> >y			8
<b>j x x j ... x</b>	<b>88</b>	<b>88</b>	<b>87</b>

Ls s s>≤vC 8Mws sv s stw≤-wfl s ±f ≤-awfl ±fl s s e s ≤ fl y s -f ae0 s>y fl s z v t-s five >vfl v s w-s ≤ w s -v s ≤  
 s y s -v-a ≤-d fl s w s Ks s >ffixv z l y z r s f i d l t f f u v e r l f i z r z s l d v f f i v l f l z y z y z f f i s v v u s  
 d fl t w d ≤ v C Kad3awes s s s a w s -Mws /a v w 0 s L a d 3 d r z z s l u s l v z 2 g f f i x v a s v l r x f i l r r M s f f i z s l

**m**  
**jwx -** DBB

**c m d f d**  
**d m m 5B9BA**  
**d x- W-w m - x i xz y jw w j- w**  
**h- - y 4A8A9**

a.zx x x o fl	R ... Y	R ..U Y	f..x x j	0-x i	Tx x l fi fiA fi
/80	/90	/:0	/;0	/<0	/=0
a-sy -	:	9	8B	;=	8
Ksv—	9	8	:A	<	8
d-ts-sy ≤	:	8	8=	;=	8
U fl	;	8	8>	9=	9
d ts-sy ≤	9	4	<	97	4
as-s-s	>	:	;7	BA	9
e ±s	;	8	9:	; <	9
ds v±	;	8	9B	;B	;
es -s≤Wb fi-	;	8	9;	::	8
d-sz -	9	8	A	8>	8
T fi-sy	8	8	8:	9B	8
d ts-fl	:	8	: =	<	:
d ts-fl Ks s	9	8	=	9:	8
as s t e t-sy	:	4	B	98	9
Ks	:	4	:7	←	8
d Psv sy	:	4	B	98	9
J-s-fl Mw -	:	8	9A	: <	8
Ks f s s	9	4	A	97	4
V s-sy sfl s	:	8	:9	≪	;
d-s-sy sy	9	8	9:	:B	9
<b>jx x j... x</b>	<b>C7</b>	<b>8E</b>	<b>A8:</b>	<b>DEB</b>	<b>:9</b>

Vn" w@n" anor yM- " ff' ffr q anoy : 44

a.zx x x o fl	j...x x a....x x c x x x x l fl d fi s	j...x x a....x x b x a fi d fi s	j...x x U	N j... bxy x c . fi i fi hffl fi p fi
/80	/>0	/A0	/B0	/870
a-sy -	<	4	9	8
Ksv—	8	8	8	9
d+stsy ≤	A	4	8	4
U fl	:	4	4	8
d +stsy ≤	8	8	8	8
as≤s≤	B	:	=	:
e ±±	;	8	9	4
ds v±	B	:	9	8
es -s≤Vb fi-	87	8	:	9
d-sz -	4	8	8	8
T fisy	<	4	4	4
d ±fl	;	4	4	9
d ±fl Ks s	:	4	4	8
as s t e t-y	8	4	8	4
Ks	:	8	8	8
d Psv y	8	4	8	4
J ±sfl Mw -	=	8	8	9
Ks f s s	9	8	4	4
V s-y sfl s	<	4	8	9
d-s-y y	:	4	4	4
<b>jx x j... x</b>	<b>E:</b>	<b>8A</b>	<b>9A</b>	<b>97</b>

d flt w6d≤ tvC M≤s Twvzs s≤Tst s wses s≤ fweysz6a sfi Rvrfy Z tv sver rfl ffevflxy cvxvfl

m  
jwx - DBZ

c k l n 5k l d 5  
i 5d i 5 i f  
d d m m 5B9B9 B9BA  
d x- V- - w W w4i -y w -z W w4f x y  
W-w R- - 4f w R y4w z X - w-z W-w f x  
i xz y jw w j- w h- - y 4A8A8 w z A8A9

a.zx x x o fl	h x i x k c f i d f i		h x i x a o f i d f i	
	9797	9798	9797	9798
/80	/90	/:0	/;0	/<0
a-sy -	4	4	4	4
Ksv—	4	4	4	4
d-tst-sy ≤	4	4	4	4
U fl	4	4	4	4
d -st-sy ≤	4	4	4	4
as-s-s≤	8	8	4	4
e ±s	4	4	4	4
ds v±	4	4	4	4
es -s≤V6 fi-	4	4	4	4
d-sz -	4	4	4	4
T fi-sy	4	4	4	4
d -sfl	4	4	4	4
d -sfl Ks s	4	4	4	4
as s t e t-sy	4	4	4	4
Ks	4	4	4	4
d Psv sy	4	4	4	4
J-s-sfl Mw -	4	4	4	4
Ks f s s	4	4	4	4
Vs-sy sfls	4	4	4	4
d-s-sy sy	4	4	4	4
<b>jx x j... x</b>	<b>8</b>	<b>8</b>	<b>4</b>	<b>4</b>



Vn" w@n" anor yM- " ff' ffr q anoy : 89

a.zx xx o fl	f ... x hx x Wx l fl d fi W e fi Wf		f ... x d hx x Wx l fl d fi W e fi Wf	
	9797	9798	9797	9798
/80	/=0	/>0	/A0	/B0
a-3y -	8	8	4	4
Ksv—	4	4	8	8
d+sts y ≤	8	8	4	4
U fl	4	4	8	8
d +sts y ≤	4	4	8	8
as≤vs≤	4	4	9	9
e ±s	4	4	8	8
ds v±	4	4	8	8
es -s≤V6 fi-	4	4	8	8
d-sz -	4	4	8	8
T fi y	8	8	4	4
d ±fl	8	8	8	8
d ±fl Ks s	4	4	8	8
as s ± e t y	4	4	8	8
Ks	8	8	8	8
d Psv y	4	4	8	8
J y sfl Mw -	4	4	9	9
Ks f s s	4	4	8	8
V s y sfl s	8	8	8	8
d-s y y	4	4	8	8
<b>jx x j... x</b>	<b>C</b>	<b>C</b>	<b>8F</b>	<b>8F</b>



Vn" w@n" anor y5M- " ff' ff q anoy : 44

a. zx x x o fl	a f x x x l fi W	f x - e fi d fi l	9797	9798	9797	9798
/80	/870	/880	/890	/8: 0		
a-sy -	8	8	9<	9<		
Ksv—	4	4	:8	:8		
d+sts sy ≤	4	4	8>	8>		
U fl	4	4	8;	8;		
d sts sy ≤	4	4	>	>		
as sy s ≤	>	>	:7	:7		
e ±±	8	8	8A	8A		
ds v ±	8	8	8A	8A		
es -s≤Vb fi	8	8	8B	8B		
d-sz -	4	4	87	87		
T fsy	8	8	:7	:7		
d ±fl	4	4	9;	9;		
d ±fl Ks s	8	8	8A	8A		
as s t e t sy	4	4	8>	8>		
Ks	4	4	8>	8>		
d Psv sy	4	4	8A	8A		
J sy sfl Mw -	9	9	8B	8B		
Ks f s s	4	4	8=	8=		
V s sy sfl s	8	8	9A	9A		
d-s sy sy	4	4	8>	8>		
<b>j x x j... x</b>	<b>8C</b>	<b>8C</b>	<b>:F:</b>	<b>:F:</b>		

d fl twd≤ tvC M s Twv s s≤Tst s w s s≤ f i e v s y s z G a s f i R v r f f y Z t v s v e r r f l f i e v l x r y c v x v f t

$\frac{m}{jwx} - DBD$

e d i k c k b  
 k l n U i 5B9BA  
 h- e w - w z X w - R z fw zw  
 h- w f x y W w4A8A9

$\frac{0}{i} x$	$\frac{hx}{k} x \frac{Yx}{fi} x$	$\frac{hx}{e} x \frac{Wx}{fi}$	$\frac{Y}{p} x \frac{x}{fi}$
/80	/90	/:0	/;0
$Ss \leq s - 6r fl r$	: :9<	9B<	: C97
$Ont s - 6r vs r$	9 B7;	9-B	: 8C:
$V s w6Wr ty$	: >7A	:9>	A 7: B
$J - 6K zfi$	: A7B	: ;9	A 8B8
$V w6Wvz$	: ; BA	9BA	: DFC
$S \leq 6T flv$	: A; A	9>7	A 88E
$S fi6T ffi$	: 9: 7	9=<	: AFB
$Jy - 6K x$	: 9<7	8>=	: A9C
$dw vfi tw6dv vfi sv$	: =A<	8B=	: EE8
$Y \pm tw6Zt \leq v$	: >	:7=	A 7C:
$W vfi tw6Y \leq vfi sv$	; 99;	9A8	A B7B
$Mwvfi tw6Nvtvfi sv$	; A: 9	: <	B 8FD
<b>9798</b>	<b>AA 7D7</b>	<b>: : E7</b>	<b>ADAB7</b>

d flt w6d ≤ tvC c flsz d±-f fl fl Mwsw as ≤ vs ≤ as ≤ vs ≤ cvy - sfa t fiu Q -sfi

m  
jwx - DBE

e d i f i d  
S k l n U i 5B9BA  
h- e w - wzX w - R z x j -  
X w y- fw zw h- wf x yW w4A8A9

0 x i	Yad d fi e fi		Yx ...x d fi e fi	
	hx x Yx x k fi	hx x Wx e fi	hx x Yx x k fi	hx x Wx e fi
/80	/90	/:0	/:0	/:0
Ss ≤ s -6r fl r	9A=8	9:=	9	A
Out s -6r vs r	9 <88	98;	9	;
V s w6W r ty	: 8BA	9⇒	8	B
J -6K zfi	:: <	9A=	9	87
V w6Wz	: 79:	9<	;	>
S ≤6T flv	:: 9;	9:7	=	B
S fi6T ffi	9 >B;	9;7	A	B
Jy -6K x	9B87	8<A	8	;
dw wfl tw6dv vfi sv	: 8;8	8=A	8	9
Y± tw6Zt ≤v	: 9: A	9>9	4	4
W wfl tw6Y ≤vfi sv	: <A:	9;9	:	4
Mw wfl tw6Vrtvfi sv	; 9B;	: 9<	4	4
<b>9798</b>	<b>: E 999</b>	<b>9 F77</b>	<b>: 7</b>	<b>C9</b>



Vn" w@n" anor y5M- " ff' ff' q anoy : 84

0 x i	k c fi		bx k x	
	hx x Yx x k fi	hx x Wx e fi	hx x Yx x k fi	hx x Wx e fi
/80	/=0	/>0	/A0	/B0
Ss ≤ s -6r fl r	;=9	<8	4	4
Ont s -6r vs r	:88	;8	4	4
V s w6Wr ty	<7<	<	;	4
J -6K zfi	; <A	;=	;	4
V w6Wvz	; >8	9=	4	4
S ≤6T flv	<8A	:8	4	4
S fl6T ffi	;9;	8=	;	4
Jy -6K x	:9A	8;	88	4
dw wfl tw6dv vfi sv	<A	9=	<	:
Y± tw6Zt ≤v	<8B	98	4	8:
W wfl tw6Y ≤vfi sv	=8:	:7	9<	B
Mwvfl tw6Nvtvfi sv	<7	:8	A	B
<b>9798</b>	<b>B DBD</b>	<b>: ED</b>	<b>C8</b>	<b>: A</b>

d fl tw6d ≤ tv c fl sz ds ± f fl fl Mwsz as ≤vs ≤ar flur fl cvx z fl r fi s fl R ≤ zr ff

m  
jwx - DBF

e i m k l n  
U i 5B9BA  
h- c U- - e w - w z X w - S -w -  
f w z w h- w f x y W w4A8A9

Y... f... x p Y fi	hx x Yx x k fi	hx x Wx e fi	Y x p fi
/80	/90	/:0	/;0
Ps w —	4	8<7	8B7
Mstww V vfi-	: ; =	89>	: AD:
aw≤ fl ≤s	4	887	887
e twu fi -	8;9>	87;	8 B: 8
L -v48B	4	B<	FB
LQ0	99A=	A9	9 : CE
d ±	4	<B	BF
Qvsv R≤...	4	<<	BB
M w s	9AAA	<	9 FA9
J wsv±—	4	;9	A9
Q-w v≤-	9>8;	4	9 D8A
d±- v≤s	88BB	4	8 8FF
UKa	88AA	4	8 8EE
QQM	88<9	4	8 8B9
a w v x ±s	BB:	4	FF:
N -fw -	B=A	4	B=A

d fl t w6d≤ tvC c fl sz ds±-f fl fl Mswsz as≤s≤sar flur fl cvxzflr fñ s fñ R≤ zr ffi

m  
jvx - D7B7G

c i d m m  
d- f x yW-w R- - j- w jw w  
h- - y 4A8A9

a.zx x x o fl	dx xf ... x l fl d fi W j fi	Ox c	f ... x f...yx o fl fi l fl d fi W	h x h x o Yfi fi	h x i...x i Yfi fi	h x O..x o Yfi fi	Y x p fi
/80	/90	/:0	/:0	/<0	/=0	/>0	
a≤s y -	a≤s y -	8	:	8	4	<b>B</b>	
Ksv—	Q sts f s y	:	4	8	8	<b>B</b>	
d t s t s y ≤	d t s t s y ≤	9	4	9	:	<b>D</b>	
U fl	U fl	:	8	4	8	<b>B</b>	
d t s t s y ≤	a f i a s t s	4	4	4	4	<b>4</b>	
as s y s ≤	as s y s ≤	9	4	4	4	<b>9</b>	
e t s	T s f s y s ≤	4	4	4	8	<b>8</b>	
ds v t s	e t s	;	4	4	8	<b>B</b>	
es s ≤ V s f i	ds v t s	8	8	4	8	:	
d-sz -	a-szs	8	4	4	9	:	
T f s y	J w t s s-s ≤	8	4	4	4	<b>8</b>	
d t s fl	T f s y	:	4	9	9	<b>D</b>	
d t s fl K s s	P ≤ s y V s z w	4	4	4	9	<b>9</b>	
as s t e t y	d t s fl	9	4	9	4	<b>A</b>	
Ks	d-t w 4 w s	8	9	4	:	<b>C</b>	
d Psv y	as s t e t y	4	4	8	8	<b>9</b>	
J s y s fl Mw -	Ks	4	4	9	4	<b>9</b>	
Ks f s s	T w s e y s	8	4	4	8	<b>9</b>	
V s y s fl s	d Psv y	8	8	8	:	<b>C</b>	
d-s y y	J s y s fl Mw -	9	9	4	4	<b>A</b>	
j x x j ... x	d-t s y s y	9	4	4	4	<b>9</b>	
	Ks f s s	8	4	4	9	:	
	V s y s fl s	8	8	8	4	:	
	ds sy z	4	4	9	4	<b>9</b>	
	d-s y y	8	<	8	4	<b>D</b>	
	<b>j x x j ... x</b>	<b>::</b>	<b>8C</b>	<b>8C</b>	<b>9A</b>	<b>EF</b>	

d fl t w s ≤ t v C M s T w w s s ≤ T s t s w s s ≤ f i e n y s z G a s f i R v r f y Z t v s e r r f l t e v l x r y c v x v f t

m  
jwx - DBZH

c d i d i f  
i d m m 5B9BA  
d x- f x yW-w R- - l x f x yW-w R- -  
X j- w jw w h- - y 4A8A9

a.zx x x o fl	dx xf ... x l fl d fi W j fi	Y x a x
/80	/90	/>0
a<=>y -	a<=>y -	:7>:
Ksv—	Q stsfsy	8<989
d†sts≤	d†sts≤	87;9:
U fl	U fl	9A;;
d †sts≤	a fi as±±	8<7B<
as≤s≤	as≤s≤	8<7B<
e ±±	Tsfsy≤	=A-8
ds v±	e ±±	B77;
es -s≤V6 fi-	ds v±	89><
d-sz -	a -szs	<=>B
T fsy	Jw±cs-s≤	8<7B<
d †fl	T fsy	8:7B
d †fl Ks s	P ≤y Vszw	98A7
as s † e t-y	d †fl	: :>>
Ks	d-v64 v6	A>AA
d Psv y	as s † e t-y	9>A=
J≤sfl Mw -	Ks	: B;>
Ks f s s	Twse-ys	88:7
V s≤ sfls	d Psv y	: <9
d-s≤ y	J≤sfl Mw -	9=A8
	d-.y±y	: B;7
	Ks f s s	87-B
	V s≤ sfls	:87
	ds sy-z	: :>
	d-s≤ y	8>
jx x	j... x	8DE FFC

d fltw6ds tvC Mss Twvws s≤Tst s w6es s≤ fiw6ysz6a sfl RvrffyZ tv-aver rfl fiw6lxry cvxvfl

$\frac{m}{jwx} - DBA$

c d i i f c  
 i m d m m 5B9BA  
 d x- f x yW-w R- - l x j - S -w -  
 j w w j- w h- - y 4A8A9

$\frac{Y... f... x}{p Y fi}$	Y x a x
/80	/90
R $\leq$ w $\leq$ s	8B <88
Mvfl s — T $\leq$ s $\pm$ j fwy-	88; <8
Q-w w $\leq$ - R v vfl zsf	AB $\Rightarrow$
Ks $\pm$ M $\leq$ xyf/x	A9; B
Ps —	>> $\neq$
M- w s	<= $\neq$ 8
Mvfl sfl e- v	<<87
cvfl s $\pm$ W w-dwsv-0 cyvfi r suK y zz	<7 $\neq$
V sfy-s /W w-Y 0 W r ffx	: 7 $\Rightarrow$
ds $\pm$ -Tw sfi Rvr rtyv	: 7: B
<b>Y x <math>\phi</math> fi</b>	<b>DE : 7C</b>

d fltw6 $\leq$  tvC M $\leq$  Tw w $\leq$  s  $\leq$  Tst s w $\leq$  s  $\leq$  f $\neq$ esysz6a sfi Rvr rfy Z tv-svr rfl ffevflxy cvxvft



m  
j w x - DBA9

c S Y S f i  
d m m 5B9B9 B9BA  
d x- c w X w j w w j- w h- - y 4  
A8A8 w z A8A9

a. z x x x o fl	9797	9798
/80	/90	/: 0
a-s-y -	=	8
Ksv—	9	8
d-t-s-y ≤	4	4
U fl	8	4
d-t-s-y ≤	4	4
as-s-s	:	4
e ±s	8	4
ds v±	4	4
es -s≤V6 fi-	4	;
d-sz -	4	4
T fi-y	4	8
d -sfl	4	<
d -sfl Ks s	8	4
as s t e t-y	:	9
Ks	4	9
d Psv -y	4	8
J-sfl Mw -	4	4
Ks f s s	4	4
V s-y sfl s	8	4
d-s-y -y	8	4
j x x j... x	8F	8D

d flt w6s tvC M-s Twz s sTst s ves s s fvevysz6a sff Rvr ffy Z tv-sver rfl ffevfxry cvxvft

$\frac{m}{jwx} -$  D7B7AA

i i f c d  
 f c c d U c  
 d d m m 5B9BA  
 f-y- w- f w m Ww-W-w X w y-  
 x j - W-w X w y-w z i- jw w j- w  
 h- - y 4A8A9

Y... Yx x a...x x x R p d fi e fi	Y... a..x Co bx 4bx i fi	f..... x b fi	Y x p fi
/80	/90	/: 0	/: 0
KaSd Twvzs s≤aKR	:: 3<	:: 3=	:: 3D7
KaSd Twvzs s≤W≤aKR	8<3 9	8>3<	8C3B:
Ssfi ±wvs	>7A	>3 9	D3A7
J s≤-d s svs≤aw szss≤6s≤	: 3>	9A<	: 38
f..... x ..ox c... Yx x a.....x x	BF3A:	C839	C73:

d fl tw6d≤ tvC Kad3d w-d sfi±≤ fi -W6 -sfi/d ves 06lad3d r z z 9lu≤lv z 2Yr z sfi r fi±szvt±fi±fi z d v

<https://itapanibungahkab.bps.go.id>

$\frac{m}{jwx} -$  **D7B7AB**

i p S AE m S  
 i d f W m f R  
 e a m d m m 5B9B9

**B9BA**

f - y - w - T - c w - z m - P - z 9D5CHO - w x  
 f wy - bw b - Q j w w j - w h - - y 4A8A8  
 w z A8A9

Tx x bfi	9797	9798
/80	/90	/:0
cdawfl w≤sz6d s s6cdB Q≤v ffi vfl R≤ z r ffa zr v R≤ z r ffa ≤yv rflu Mzffi R≤ z r ffi	9: 3 B	9: 3 B
c fl sz Kw sfi±fi± Wr v flz R≤ z r ffa	>3<	8: 3:
a ±wfl s a sffi Rvr ffy Mfl v	9B3 A	: <3 A
a d s zur Rvr ffy Mfl v	4	; 37
a s±w±V6±w Rvr ffy h ≤ffv	88B:	>3<
a f±w6a ±wvw a≤fflu v Sa≤ffv uv	83B8	737
c fl sz R≤ v	9: 3 9	873<
U≤≤s Z yv	939	737
<b>Y x φ fi</b>	<b>87737</b>	<b>87737</b>

d fl t w6d ≤ tvC Kad3d w-d sfi± ≤ fl -V6 -sfi/d ves 06L ad3d r z z 9flu±lv z 2Yr z d r ffa ±z r t ±fi ± z d v

$\frac{m}{jwx -}$  DBAC

i p p S AEØI m  
 S i d f i d  
 R e a m d m m 5  
 B9B9 B9BA  
 f - y - w - T - c w - z m - P - z 9D5CHo - w x j -  
 bw Q P - zw jw w j - w h - - y 4A8A8 w z  
 A8A9

f... a..x x j..x hfi V U fi	9797	9798
/80	/90	/:0
M ±w Ts±v ±ys± Zs v ±x fl	8>9A	983>
M ±w f fl fl Qvflv rffl rt z±flv	: 9:	737
K±s± W±i ±v	⇒±9	±83 >
aws s Y v	8B>	93<
M ±±K±ws±±±as s ±±. e r uz±±flr fl±z y K vflur fl	>A8	; 9B
U±±±s Z yv	83A	93±
<b>Y x ± ± fi</b>	<b>877377</b>	<b>877377</b>

d fl t w±±± tvC KadBd w-d ±fiN±± fl -V± -±fvd wes 0±.ad±d r z z fl u±±v ± 2Yr ±±fl r fl ±±zvt ±±±± ± d v

$\frac{m}{jwx} - \text{DBAD}$

c R S R d  
 U f d d m  
 m 5B9BA  
 d x- d- Pyy- w z R wy- -k -z x  
 i xz y X jw w j- w h- - y 4A8A9

	$\frac{Y}{N \dots 0x}$	$\frac{WRi}{eqYo}$	$\frac{x}{fi}$	$\frac{f}{l}$	$\frac{a}{W}$	$\frac{i}{e}$
/80	/90	/:0	/:0	/-0	/=0	/=0
a<=y -	;9<	4	8B9	8:=	8;>	
Ksv—	:AA	4	A<	97	<7	
d+sts≤	;9A	4	B<	99	AB	
U fl	9=8	4	:B	9=	◇	
d +sts≤	=	A	:9	8;	; <	
as≤s≤	AB:	8=	9:=	8;7	: -A	
e ±±	9>>	87	<<	◇	×	
ds v±	:AA	8A	>8	⇒	BA	
es -s≤V6 fi	;89	8=	;B	9	<	
d-sz -	A>	4	<<	:<	::	
T fi≤y	<<	4	:>	98	877	
d ±fl	=;	:	98	A	9	
d ±fl Ks s	9=B	8	8:8	=A	8;9	
as s t e t≤y	8>	4	<	;	=	
Ks	:>A	;	887	88B	89A	
d Psv ≤y	::9	8<	>>	:A	≠	
J≤sfl Mw -	:::	8	>7	:>	B;	
Ks f s s	A=	88	⇒	;7	◇	
V s≤y sfl s	:::	4	:;B	98A	:9<	
d-s≤y ≤y	;=<	4	8=	;	B<	
<b>j x x j... x</b>	<b>D9F9</b>	<b>87:</b>	<b>8 DF9</b>	<b>87DC</b>	<b>9 878</b>	



Vn" w@n" anor yM-" ff' ffr q anoy : 47:

Nx a x ... ox R x x p W fi q				
a.zx x x o fl	W x e fi	c .: e ..x mx xG y... i fi k fi s fi ī ks 2	c .: e ..x f x6 lx ... i fi k fi i ī kl 2	Y x p fi
/80	/>0	/A0	/B0	/870
a-sy -	877	4	4	<b>BDB</b>
Ksv—	8:7	4	4	<b>9EB</b>
d+sts sy ≤	BA	4	4	<b>: 7A</b>
U fl	◇	8	4	<b>8E7</b>
d +sts sy ≤	=B	4	4	<b>8C7</b>
as≤s≤	8>9	8A7	4	<b>8 889</b>
e ±±	=B	4	4	<b>9CC</b>
ds v±	8; B	<	4	<b>A7E</b>
es -s≤V6 fi	A;	>	4	<b>989</b>
d-sz -	8A	4	4	<b>8B8</b>
T fi sy	8-8	4	4	<b>: 7F</b>
d ±fl	8: :	88	4	<b>99E</b>
d ±fl Ks s	898	4	4	<b>AC:</b>
as s t e t sy	9A	8	4	<b>AA</b>
Ks	89B	4	4	<b>AF7</b>
d Psv sy	8: A	9	4	<b>: AC</b>
J ±sfl Mw -	>8	87	4	<b>9E:</b>
Ks f s s	; =	4	4	<b>998</b>
V s sy sfl s	9: A	4	4	<b>8 8: 7</b>
d-s sy sy	=	8	4	<b>8E9</b>
<b>jx x j... x</b>	<b>97BF</b>	<b>98E</b>	<b>4</b>	<b>D: AF</b>

d fl t w6d≤ tvC M-s awesw/s fis≤awes v ±vs≤Tvn s ys Kwweks Tst s wses s≤ frewey sz6a≤ ffi zafi Mafi ±fi flu Pr fi ffi affifflaz Z tv sver rfi ffevflrx cvxvft

m  
jwx -

c i n l i n l ZR R 5  
R S f d d  
m m 5B9BA  
d x- U- -R -4Py -Pyy- 4w z d-  
Pyy- x i xz y X jw w j- w h- - y 4A8A9

a.zx xx o fl	fx x x k xi y b W / x x x 6 0	Y x p fi / x x x 6 0	N ... N `u U f.....x .j...x-x fx x x k xi y l fi b W
/80	/90	/:0	/:0
a↔y -	: 7;7	87=9	::B:
Ksv—	: 8>9	88A=	:>B
d+sts y ≤	9: 98	87<=	; <7
U fl	8=A	::;	9>A
d sts y ≤	<<	9>	; A>
as≤s≤	=AA=	9 BB;	:: 3 A
e ±±	8=;	<7>	: 83=8
ds v±	9::<	B87	: AB>
es -s≤W6 fi	9 <7>	A=	:: 3 9
d-sz -	⇒	9<9	: A3 =
T fi y	99A>	A=8	: ><
d ±fl	97=A	⇒	: 99<
d ±fl Ks s	8>;	⇒9	: A9=
as s t e t y	A;	:>	:: 3;
Ks	9779	A<8	: 938
d Psv y	8::A	<7;	:>B
J sfl Mw -	8<	9B9	8>=
Ks f s s	<9;	8A9	::>
V s y sfl s	99;9	; A>	983>9
d-s y y	97>B	B<7	; <7
<b>j x x j ... x</b>	<b>A8 ADB</b>	<b>8B : D9</b>	<b>: D3C</b>

d fl tw6d s tvC M s awywsrfsisawes v ±vs≤Twns ys Kwvws s Tst s wses s≤ frewys z6s ffi zsl Msl sfi flu P fi ffi  
affiflfiZ tv sner rfi fzevflrx cvxvft







$\frac{m}{jwx -}$  D7B

c m i f d  
 d m m 5B9BA  
 d x- f wy- m x i xz y w z h-  
 jw w j- w h- - y 4A8A9

a.zx xx o fl	cx - i	c xx l fi n	U...x a ... W	U...x ax Wf W	f x p	l x x i fi
/80	/90	/:0	/;0	/<0	/=0	/>0
a↔y -	8<	4	<8	=	4	4
Ksv—	8=	>	: =	87	4	4
d†sts≤	8=	4	::	87	4	4
U fl	<	4	9B	88	4	4
d †sts≤	9	4	8<	:	4	4
as≤s≤	:<	8;	::	:	4	4
e ±s	8<	8	9B	9	4	4
ds v±	A	88	8B	8	4	4
es †≤Wb fi-	88	>	9;	;	4	4
d-sz -	9	4	8>	:	4	4
T fi≤	89	8	;=	87	4	4
d †fl	=	8	:A	>	4	4
d †fl Ks s	>	8	9:	=	4	4
as s † e t≤	4	4	:7	A	4	4
Ks	9:	>	88	;	4	4
d Psv ≤	89	8	99	A	4	4
J≤sfl Mw -	>	4	9=	8;	4	4
Ks f s s	4	9	8:	;	4	4
V s≤ sfl s	8A	4	:A	8A	4	4
d-s≤ ≤	87	4	::	87	4	4
<b>jx x j... x</b>	<b>997</b>	<b>B:</b>	<b>BED</b>	<b>8A9</b>	<b>4</b>	<b>4</b>

d fl t wóds tvC Ts≤ Twfl wsw-s≤)ysfls Tst s wses s≤ fiewyszcúvifz≤ K rz Z tv≤ner rfl ifevflxry cvxvfl

m  
j w x - D X X

c U A d f S R B  
f d d m m 5  
B9AI B9B9  
d x- l w - 97a- w w w Wwz dw w S w - A  
x i xz y j w w j- w h- - y 4A89H A8A8

a. z x x x o fl	978F	9797	9798
/80	/90	/:0	/;0
a-sy -			
Ksv—			
d-tstsy ≤	:	8	8
U fl			
d -tstsy ≤	:	8	
as-s≤s≤	:	;	8
e ±s			
ds v±	:	:	
es -s≤V6 fi-	:	:	
d-sz -			
T fsy	:	A	:
d -sfl		8	8
d -sfl Ks s		9	9
as s t e t-y	:	8	;
Ks	A	B	9
d Psv sy			
J-sfl Mw -		8	
Ks f s s			
Vs-sy sfls	:	;	8
d-sy sy	:	;	<
j x x j... x	: E	A8	97



Vn" w@n" anor yM-" ff' ffr q anoy : 99

a.zx x x o fl	U... x 0	ffi	fi
	978F	9797	9798
/80	/<0	/=>	/>0
a->ay -			
Ksv—			
d†stsay ≤			
U fl			
d †stsay ≤			
as≤s≤	99		
e †s			
ds v±			
es -s≤V6 fi-	B		
d-sz -			
T fiay		:	
d †fl			
d †fl Ks s			
as s † e tay			
Ks			
d Psv ay			
Jay sfl Mw -			
Ks f s s			
Vs ay sfl s			
d-say ay			
jx x j... x	: 8	:	



m  
jwx - D7C7D

c c a f d c  
d d m m 5B9BA  
d x- Ww f x i xz y w zi- jw w  
j- w h- - y 4A8A9

a.zx x x o fl	0..x x 6' fi			a...yx 6n		
	bx 4bx i fi	f..... x b fi	Y x p fi	bx 4bx i fi	f..... x b fi	Y x p fi
/80	/90	/:0	/:0	/<0	/=0	/>0
a-sy -	4	4	4	4	4	4
Ksv-	4	4	4	4	4	4
d-tsts ≤	4	4	4	4	4	4
U fl	4	4	4	4	4	4
d -sts ≤	4	4	4	4	4	4
as ≤s ≤	4	4	4	4	4	4
e ±s	4	4	4	4	4	4
ds v ±	4	4	4	4	4	4
es -s ≤Wb fi	4	4	4	4	4	4
d-sz -	4	4	4	4	4	4
T fi sy	4	4	4	4	4	4
d -sfl	4	4	4	4	4	4
d -sfl Ks s	4	4	4	4	4	4
as s t e t sy	4	4	4	4	4	4
Ks	4	4	4	4	4	4
d Psv sy	4	4	4	4	4	4
J -sfl Mw -	4	4	4	4	4	4
Ks f s s	4	4	4	4	4	4
V s sy sfl s	4	4	4	4	4	4
d-s sy	4	4	4	4	4	4
jx x j... x	4	4	4	4	4	4

Ls s s ≤vC e-ws ±vs ±w ws sy ±s ≤sfl ssz Qs -s ±s as ≤wfl -L -y48B  
d flt w6 ≤ tvC Ts ≤ Twfl w-w-s ≤j ysfl s Tst s wses s ≤ fi wesy sz & vfi z ≤ K rz Z tv suer rfl fi wfl xry cvwx flt

m  
j w x - DTCÆ

c c a h h d  
m m 5B9AE 6B9BA  
d x- Ww f w z R - f- j w w  
j- w h- - y 4A89D5A8A9

pf u fi	Y...xx Vx dfi l / x 6 0	e W d /ki Rdf 0
/80	/90	/:0
978<	;B	f dM9; 7;
978=	◇	ca : 8 ⇒9 A9>
978>	<9	ca : 8 >7; 77
978A	>8	c : 8 A; 7 : ×
978B	A;	c : 8 >7 : ×
9797	8	c : 9 8 >9 ⇒9
9798	8	8

Ls s s ≤vC 8e-v±svs ant ws ±y±s s≤Swfl szz Qs .s±±s as ±vfl -L v48B  
d fl twd≤ tvC Ts≤ Twfl w≤w-s≤j ysf s Tst s wses s≤ frevyszçvfxz K rz Z tv≤ver rfi ffevflxry cvxvfl

m  
jwx - D7C7

c i f d d  
m m 5B9BA  
d x- c w w - x i xz y jw w j- w  
h- - y 4A8A9

a.zx x x o fl	9797	9798
/80	/90	/: 0
a-sy -	89B	89:
Ksv—	8: B	8; B
d+sts sy ≤	8: B	87=
U fl	<8	9=
d sts sy ≤	8<	<
as≤vs≤	9A9	:9;
e ±s	=	<<
ds v±	<	=
es -s≤V6 fi	<B	=
d-sz -	=	9
T fsy	<B	=8
d ±fl	; <	; A
d ±fl Ks s	<B	=
as s t e t sy	4	8
Ks	887	89<
d Psv sy	:7	99
J sy sfl Mw -	:A	:B
Ks f s s	8	8
V s sy sfl s	<	; A
d-s sy	; ;	; A
<b>jx x j... x</b>	<b>8: DF</b>	<b>8: E8</b>

Ls s s s s vC Qs s s ≤ ± s sy twsysfl s R fs fl 6K fi sffivs fi ≤ fffi  
d fl t w6d s tvC Ts s Twfl w s w s s y s fl s Tst s w e s s s f r e w e y s z G v f i z s K rz Z tv sner r fl f f e v f l x r y c v x v l t



m  
jwx - D7C7G

c R i U f  
d d m m 5B9B9 B9BA  
d x- c w w -R- yw-X -z x i xz y  
jw w j- w h- - y 4A8A8 w z A8A9

a.zx xx o fl	9797			9798		
	mdW e fi	mdN b		mdW e fi	mdN b	
/80	/90	/:0		/:0	/-0	
a→s	8>B	4		98;	4	
Ksv—	8B=	4		9>:	4	
d†sts	A7	4		8<	4	
U fl	87A	4		8>8	4	
d †sts	::	4		⇒	4	
as≤s	8BB	4		9;:	4	
e ±s	88<	4		A8	4	
ds v±	8-9	4		8>B	4	
es ≤wB fi	8-9	4		9-9	4	
d-sz -	; <	4		::	4	
T fi	87B	4		9; >	4	
d †fl	8::	4		8A7	4	
d †fl Ks s	887	4		87:	4	
as s † e t	8: >	4		⇒	4	
Ks	::	4		<B	4	
d Psv	977	4		8>8	4	
J ≤sfl Mw -	8<	4		9: <	4	
Ks f s s	; B	4		⇒	4	
V s ≤s fl s	9B9	4		9<8	4	
d-s	899	4		9; =	4	
U s Tst s wses s ≤s frewysz	4	4		>	4	
<b>jx x j... x</b>	<b>9 CA7</b>	<b>4</b>		<b>: : 7A</b>	<b>4</b>	

Ls s s s vC Mb s MK dvl w w R9798

d fl twéd wC Ms Tw wsv v †s ≤s ≤aws s s s d-f†st s wses s ≤s frewysz 6Nvf s r y rfu Nz †fi vxz r zfl dv zv sv  
er rfl †fiv fixy cvxvfl

m  
jwx - DCH

c i T Y T m f  
d d m m 5B9BA  
d x- S y-x i xz y jw w j- w  
h- - y 4A8A9

a.zx x x o fl	P..x U x Y	P..x jx x Y
/80	/90	/:0
a-asy -	87	8:
Ksv—	8B	9:
d+sts:ay ≤	8B	9:
U fl	=	>
d +sts:ay ≤	8	8
as:ay≤	8:8	8⇒
e ±s	87	88
ds v±	9=	9A
es -s≤Wb fi-	<	88
d-sz -	8A	9=
T fi:ay	88	8:
d ±sfl	98	:8
d ±sfl Ks s	8<	98
as s ± e t:ay	9	9
Ks	A	89
d Psv :ay	4	9
J:ay:fl Mw -	:	:
Ks f s s	:	:
V s:ay sfl s	9	:
d-s:ay :ay	=	89
<b>jx x j... x</b>	<b>:8C</b>	<b>A89</b>

d fl t w b d s tvC awesv v fi s j ys fl s as :ay s ≤ Tw b f f M f i Sc v f i z s M s s var flur fl

m  
jwx - DC7

c R i U f  
d d m m 5B9B9 B9BA  
d x- S y-R- yw-X -z x i xz y  
jw w j- w h- - y 4A8A8 w z A8A9

a.zx xx of	9797			9798		
	mdW e	fi	mdN b	mdW e	fi	mdN b
/80	/90	/:0	/:0	/:0		
a-sy -	4	4	4	4		
Ksv-	8	4	8	4		
d-tst-sy ≤	4	4	4	4		
U fl	4	4	4	4		
d -st-sy ≤	4	4	4	4		
as-s≤s	8	4	:	4		
e ±s	4	4	4	4		
ds v±	;	4	;	4		
es -s≤Wb fi	4	4	8	4		
d-sz -	4	4	8	4		
T fi-sy	4	4	8	4		
d -sfl	4	4	4	4		
d -sfl Ks s	4	4	8	4		
as s t e t-sy	4	4	4	4		
Ks	4	4	8	4		
d Psv -sy	4	4	4	4		
J-sfl Mw -	4	4	8	4		
Ks f s s	4	4	8	4		
V s-sy sfl s	4	4	4	4		
d-s-sy sy	8	4	4	4		
U s Tst s wses s≤ frewgsz	4	4	8	4		
<b>jx x j... x</b>	<b>D</b>	<b>4</b>	<b>8C</b>	<b>4</b>		

Ls s s-sy-svC Mb s MFK dwl w w RR9798

d fl twd wC M-s Tw wsv v -s≤vs≤awsls s s≤d-fTst s wses s≤ frewgsz dNvfi s r y rflu Nz fivxz r zsi dv zv sv  
er rfl ffevfxry cxxvfit

**DAD** dVf b dly Rg URg i Vf SRgYngRg f Rgnl bR  
 f e l Thj o PdS Wkc Pd STI Tbe f c Tdj

$\frac{m}{j_{wK} -}$  **DADA** Y d 5c 5 i i  
 f d m m 5B9AE B9BA  
 f - b -4d x- w z f- y- w - f- -k z-  
 f - b - jw w j- w h- - y 4A89D A8A9

$jx$ $u \bar{n}$	$Ux$ $l$ $1 \bar{n}$	$a \dots$ $x$ $6 x$ $\bar{n} C \bar{n}$	$x$ $x \bar{y}$ $\bar{n} C$	$x$ $x 0$ $2$	$Y$ $p \bar{n}$ $\bar{n}$	$x$ $x 6$ $0$	$f \dots x \dots$ $l \bar{n}$
/80	/90				/: 0		/: 0
978<	: 7>>87				<937		8<37
978=	: < <				<83>		8; 3A
978>	: =>-A>				< 3<		8; 3=
978A	: =B; >8				; A3<		8: B>
978B	: <-; >				; =BB		893<
9797	; 7=>=				; >BB		893 A
9798	; 9B7<7				; BB<		893>

d fl t w6d ≤ tvC Kad3d w-d -sfnt ≤ fl -W6 -sfv/d w6 06Lad3d r z z 9lu4lv z 2Yr z 3lr ffl z 3sr t 3i 3i z d v

$\frac{m}{jwx} - DDB$

$b \quad d \quad d \quad i_A^2 \quad b \quad d$   
 $d \quad i_B^2 \quad d \quad m \quad m \quad 5B9AE$   
**B9BA**  
 $f - Vw Xz - G^1 w z f - i - - Xz - G^1$   
 $jw w \quad j- w h- - y 4A89D \quad A8A9$

$jx$ $u fi$	$jx \ x$ $f_8$	$j... x$ $f_9$	$i \ x \dots x \ k \ x \ x$ $f_8$	$f_9$
/80	/90	/:0	/:0	/-0
978<	937	73<	83<	73 9
978=	83<	738	83>	73 B
978>	939	73<	838	73 ;
978A	83<	73 7	83<	73 8
978B	83<	73 8	83 >	73 8
9797	83<	73 ;	838	73 B
9798				

d fl t w d ≤ tvC Kad3d w-d s f n t ≤ fl -w6 -s f v d ves 06lad3d r z z sflu sly z 2Yr z s i r f f s t z s r t s i s i z d v

$\frac{m}{jwx} - DDC$

d b i f 1b f 2  
 d m m i l n 5  
 B9AI B9BA  
 R - W w S - - - Xz- **MSX**  
 jw w j- w h- - y w z i w- wk w wf y-4  
 A89H A8A9

a	...	j x x	j ... x	i	x ..x k x x		
W		978F	9797	9798	978F	9797	9798
/80		/90	/:0	/;0	/<0	/-0	/>0
f - Qs s s ≤ Q-v Vzv O vt r flt /sz ≤ vr 0		⇒3A	⇒3<	⇒3;	=A3<	=B3	=B3:
Qs s s ≤ Lb fl s dvt f sz O vt vujvr <vdy<flx /sz ≤ vr 0		893-B	8: 3=	8: 3>	8: 3<	8: 3:	8: 3>
cs s4 s s Lb fl s dvt f sz Wvr fljvr <vdy<flx /sz ≤ vr 0		A3 A	A3-9	A3;	B3 <	B3;	B3-A
avsywfs s ≤ w s -s av M zr O vfluz v / ± -sz6y ≤ rflu xy 0		878<	877>8	878: A	87 ⇒ B	87 ; 97	87 ; BB
W-... f...yx x c x x d fi Y e		CE3C	CF3:	CF38	D83DA	D83DD	D937

d flt w6d ≤ tvC Kad3d w-d -sfln ± ≤ fl -V6 -sfi/d ves 06Lad3dr z z fl u<flv x2Yr z fl r fl -szvt -fl -fi z d v

m  
jwx - DDD

c d i l l d l b f d 5  
B9AF 6B9BA  
d x- f wf - w z 9 f - U w x  
i xz y jw w j- w h- - y 4A89E 5A8A9

a.zx xx o fl	978C	978D	978E	978F	9797	9798
/80	/90	/:0	/;0	/<0	/=0	/>0
a<=y -	8:>8	8;=9	8;:7	8::A	B7A	8:89
Ksv—	89A:	8 A: B	8 = =	87>=	ABA	8;=8
d+sts y ≤	>:	;<A	9A7	9A7	4	4
U fl	: =	: <	9A;	9<	4	A7<
d +sts y ≤	9<	9: 8	9<	9<	: B7	89;
as≤s≤	9 B99	8 778	: >B	8 =:	A8>	8; <
e ±±	9; 87	8 B=9	8 B77	8 A: =	8 97;	8 B: :
ds v±	8;: 8	8 8A<	8 =9	B7<	AA=	8 8A;
es -s≤Vb fi	9 A=	: 7<B	9 >B8	>7B	: BB	>B9
d-sz -	8<7	8; 9	9=7	8B<	889	99<
T fi y	8 <B=	8 <B=	8 =>	8 =>	; 8>	8 < 7
d ±fl	>9<	8; A	8 8; 8	B97	< 8	A<
d ±fl Ks s	>A;	: <9	: >9	>AA	: <	>B;
as s t e t y	: A;	=9>	<<9	A<	8A:	<7
Ks	A87	<=7	8 =78	8; >	8; 87	8 877
d Psv y	989	8BA	>7	>7	=7	<87
J ≤sfl Mw -	8 BA7	9 998	8 A77	8 A77	8 =77	8 A77
Ks f s s	887	8<=	8: =	; <9	9>>	: 9>
V s ≤ sfl s	8<	=B7	9: >7	8 B>	9 7BB	9: =>
d-s y	8 <79	8 =>8	9 <97	9 <8<	: >	B8B
jx x j... x	99 7CD	8F F89	9D 7BD	98 CEF	8: AEE	97 78:

d fl t w d ≤ tv C M s awesw s f s s awes v ± v s ≤ T w f s y s Kw w e u s T s t s w e s s ≤ f r e w e s y z G a s f f i z s l M s l s f i f l u P r f i z f i  
a f f i f l z l z Z t v s w e r r f l f z e v l x r y c v x v i t

m  
jwx - DDE

c d i f i d  
a 1di f i da 2f d d  
m m 5B9AGB9BA  
d x- Uw W -f w -Qaf c faWih-y -  
x i xz y jw w j- w h- - y 4A89F5A8A9

a.zx x x o fl	978D	978E	978F	9797	9798
/80	/90	/:0	/;0	/<0	/=0
a-sy -	>:	87=>	B<	8787	B=
Ksv—	AA9	89<	88=>	8: A;	89B<
d+sts≤	; >	=	=7;	=>	= A
U fl	; =7	=8=	<=	>8<	=A<
d +sts≤	988	9=8	9: >	99A	997
as≤s≤	; <	8; B7	8: 7A	8: >	8: 87
e ±s	99;	; >9	; 9:	<9:	<87
ds v±	: 8:	<9A	; A;	<A>	<=
es -s≤V6 fi-	<78	A87	> 9	A; A	A: =
d-sz -	98;	; 8;	: >8	; 9B	; 9=
T fs≤	= <	87B;	BB;	88<	8899
d ±fl	; 8=	A8;	> 7	A; A	A: 9
d ±fl Ks s	; =	AA8	>BA	B88	A>A
as s ± e t≤	98;	:: >	: 8=	: =A	: =7
Ks	9; =	=B7	<<	A7=	>B>
d Psv ≤	99A	<:	; A>	=<	= =
J ≤sfl Mw -	=9>	87=A	B98	BA<	B9>
Ks f s s	977	9B8	9: B	9: 8	9: 8
V s ≤ sfl s	=A>	8: <=	899:	89>9	88A:
d-s≤ ≤	9: <	=97	< =	>9>	=A=
<b>jx x j... x</b>	<b>EAD7</b>	<b>8B9E7</b>	<b>8: CF:</b>	<b>8BD: :</b>	<b>8B7FF</b>

d fltw6d≤ tvC Mss d -flTst s wses s≤ fiwesy26d±zr fliv zvZ tv sver rfi flzeflxry cvxvflit



m  
jvx - DDF

c d i f i S  
i g m 1di f Si gm2f d  
d m m 5B9AH69BA  
d x- d SRw U z P wy-f w -h-y -  
Qaf c Qf dj 1x i xz y jw w j- w h- - y 4  
A89G5A8A9

a.zx x x o fl	978E	978F	9797	9798
/80	/90	/:0	/:0	/:0
a-sy -	8;=	8;=	8=8B	8;9;
Ksv—	98AB	98AB	9=87	97;=
d+sts≤	897:	897:	899<	8:89
U fl	87;<	87;<	8877	88;B
d +sts≤	:7>	:7>	::9	:⇒
as≤s≤	8:≥	8:≥	8>B	9:::
e ±s	B;7	B;7	878;	B9B
ds v±	A9;	A9:	BA7	8<9<
es -s≤V6 fi-	8:7=	8:7=	8;>A	8⇒7
d-sz -	=7>	=7>	>.>	>8;
T fi≤	8A>9	8A>9	97AA	9787
d ±fl	88B=	88B=	8;87	8<B
d ±fl Ks s	89⇒	89⇒	8:B<	8:⇒
as s t e t≤	<:	<:	<B7	B8B
Ks	8:B8	8:B8	8<A7	8>A
d Psv ≤	87⇒	87⇒	89AB	88:B
J≤sfl Mw -	8::>	8::>	8;9<	8<B:
Ks f s s	::8	::8	;99	;>9
V s≤ sfl s	8A:=	8A:=	977:	8A=A
d-s≤ ≤	88::	88::	88-B	8:::
jx x j... x	9:::8	9:::8	9C8FB	9DA9:

d fltw6s tvC Mss d -flTst s wses s≤ fiwvysz6d±zrflv zvZ tv sver rfi fiwvflxy cvxvflit

m  
jvx - DDTG

c i l d S f  
f f d d m  
m 5B9AH6B9BA  
d x- S-w R - w -f Q- - yw -  
x i xz y jw w j- w h- - y 4A89G5A8A9

a.zx x x o fl	978E	978F	9797	9798
/80	/90	/:0	/:0	/:0
a-sy -	B	9:	99	9=
Ksv—	98	::	::	;8
d+sts sy ≤	8=	>	;	:
U fl	<	8	8	9
d +sts sy ≤	88	<	4	9
as≤s≤	:A	;A	;A	≥
e ±s	:8	8B	98	98
ds v±	89	9B	::	::
es -s≤V6 fi-	9	: =	9:	::
d-sz -	8;	99	8:	9<
T fi sy	>	<	B	A
d ±sfl	8>	:	;	:
d ±sfl Ks s	:7	=	B	89
as s t e t sy	=	8	:	8
Ks	97	98	9<	8>
d Psv sy	8=	8	99	9<
J sy sfl Mw -	;	<	8=	;
Ks f s s	8=	=	A	A
V s sy sfl s	8>	;	9	;
d-s sy	A	;	9	9
jx x j... x	:77	9E7	:77	:BB

d fltw6s tvC Mss d -sflTst s wses s≤ fiesysz6dszr fliv zvZ tv sver rfi fievfixry cvxvflit

m  
jvx - DDTH

c d S R l f  
d d m m 5B9AH39BA  
d x- dw ww zi ywS w - l y x  
i xz y jw w j- w h- - y 4A89G5A8A9

a.zx x x o fl	978E		978F	
	0..zx xNx	0..zx xi x	0..zx xNx	0..zx xi x
/80	/90	/:0	/;0	/<0
a-5y -	B	9:	99	9=
Ksv—	98	::	::	;8
d+sts≤	8=	>	;	:
U fl	<	8	8	9
d +sts≤	88	<	4	9
as≤s≤	:A	;A	;A	≥
e ±s	:8	8B	98	98
ds v±	89	9B	::	::
es -s≤W6 fi	9	: =	9:	::
d-sz -	8;	99	8:	9<
T fi≤y	>	<	B	A
d ±fl	8>	:	;	:
d ±fl Ks s	:7	=	B	89
as s ± e t ≤y	=	8	:	8
Ks	97	98	9<	8>
d Psv ≤y	8=	8	99	9<
J ≤sfl Mw -	;	<	8=	;
Ks f s s	8=	=	A	A
V s ≤ sfls	8>	;	9	;
d-s ≤y	A	;	9	9
jx x j... x	:77	9E7	:77	:BB



Vn" w@n" anor y5M-" ff' ff q anoy : 4 A

a.zx x x o fl	978E		978F	
	0..zx xNx	0..zx x i x	0..zx xNx	0..zx x i x
/80	/90	/:0	/;0	/<0
a→s y -	B	9:	99	9=
Ksv—	98	::	::	;8
d†sts y ≤	8=	>	;	:
U fl	<	8	8	9
d †sts y ≤	88	<	4	9
as s s ≤	:A	;A	;A	≥
e ±s	:8	8B	98	98
ds v±	89	9B	::	::
es →≤V s fi	9	: =	9:	::
d-sz -	8;	99	8:	9<
T fi s y	>	<	B	A
d †sfl	8>	:	;	:
d †sfl Ks s	:7	=	B	89
as s † e t s y	=	8	:	8
Ks	97	98	9<	8>
d Psv s y	8=	8	99	9<
J s sfl Mw -	;	<	8=	;
Ks f s s	8=	=	A	A
V s s y sfl s	8>	;	9	;
d-s s y	A	;	9	9
<b>j x x j... x</b>	<b>:77</b>	<b>9E7</b>	<b>:77</b>	<b>:BB</b>

d flt w6d ≤ tvC M s d †fl†st s v s s ≤ f e v e y s z 6 d s t r f i v z v Z tv s v e r r f i f e v f l x r y c v x v f i t

DÆ dklf lg RebnRI  
RhX T

m — DÆA c i d 8  
j w x - U U f c d 8  
i d m m 5B9BA  
d x- R -7 w h- -z w z h- -z x j -  
R -7 w j w w j- w h- - y 4A8A9

Y... a..x x x G..x x x p W G r f i	R x x n	R ...x x n	0... i...x j u n
/80	/90	/:0	/:0
awfl t ≤ z s ≤	4	8	4
awesys ≤ s s ≤ K s s	8=A	8; >	98
awesys ≤ s s ≤ K w s	4	4	4
V wesys ± s s ≤ V wesys f i m s s s U s s T s wes J f i s	4	4	4
T w e w s s ≤ M s f i f l c f l s z e s s y s / T M c e 0 6 awesys ≤ s s ≤ M s f i f l U s y ± c f l s z e s s y s	:9	9<	>
aw ± s s ≤	4	4	4
awesut f i s ≤	=8	:B	99
awesut f i s ≤	4	4	4
V w f l w e w s s ≤ J s ± M t s s z f f l	4	4	4
awesut s s ≤ M w e s y s ≤ T w e w s s ≤	A	8	>
awesut s s ≤ M w e s y s ≤ T w e w s s ≤ V w e s y y s s s ≤ d w e s s s J - d w e s s θ	4	4	4
awesut s s ≤ M w e s y s ≤ T w e w s s ≤ V w e s y y s s s ≤ d w e s s s e s s f l / d s s f l 0	4	4	4
awesut s s ≤	87;	=	<A
awesut s s ≤ M w e s y s ≤ awfl t w s s ≤	A>	;7	
awesut s s ≤ T w e w s s s s ≤ K w f l	>7	89	<A
awesut w s s s ≤ awesut z s s u s s ≤ K s s y	9=	8<	88
awesut s s ≤	4	4	4
awfl t s s s s ≤ M w e s y s ≤ d w e s y s s .	9	9	4
T w t s s s ≤	9<	9;	8
V 6 ± s s v s ≤ a ± s s	BB	887	4



Vn" w@n" anor ySM- " ff' ffr q anoy : 4 4

Y... a..x x x G..x x x p W G fi	R x x n	R ...x x n	O... i...x j u n
/80	/90	/:0	/:0
aw..v<≤	9<	8B	=
awfi ws s≤	8	8	4
awsy s≤afli s≤	8A	8;	;
awsyywfs s≤	9>	8:	8;
T -	4	4	4
aw<- s≤awt s s≤L s≤y	;9	88	:8
awfi sfi s≤d s	9	4	9
awsyz-s s≤	A	87	4
ffwysfilU yy-ey	8	8	4
Twszs s≤ewzsvs Tww t s≤f fl	4	4	4
Us-s<f s≤	B<	⇒9	::

d fltwbd≤ tvC Ts≤ Tw fi-s≤cw es s≤ fweysz6lz z a<fivZ tv≤vr rfl fzevifxy

m  
jwx - DÆB

c i d f c d  
c d d m m 5B9BA  
d x- e - z- j - R -w z i- jw w  
j- w h- - y 4A8A9

Y... a..x xx G..x xx p W G fi	Y... a..x G bx 4bx i fi	f..... x b fi	Y x p fi
/80	/90	/:0	/:0
awfi t ≤ z s ≤	8	4	8
awesys ≤ s s ≤ k - s	88:	:A	8AD
awesys ≤ s s ≤ kws	4	4	4
V wesys ± t s ± s ≤ V wesysy s f i M ≤ s s s U ± Ts wes J fi s	4	4	4
T w t w s s ≤ M b f i f l c f l s z e s g y s / T M c e 0 6 awesv s ≤ s s ≤ M b f i f l U s y ± c f l s z e s g y s	9<	4	9B
aw ± s s ≤	4	4	4
awesut fi s ≤	:B	4	:F
awesv fi s ≤	4	4	4
V w f l w t w v s s ≤ s j s s ± M t s s z f f l	4	4	4
awesv s ≤ M w e s y s ≤ T w t w s s ≤	8	4	8
awesv s ≤ M w e s y s ≤ T w t w s s ≤ V w e s y y s ± s ≤ s d w e s s s j - / d w e s - 0	4	4	4
awesv s ≤ M w e s y s ≤ T w t w s s ≤ V w e s y y s ± s ≤ s d w e s s s e s s f l / d s s f l 0	4	4	4
awesv s ≤	;;	9	AC
awesv s ≤ M w e s y s ≤ a w f l t w s s ≤	:B	8	A7
awesv s ≤ T w e s v s s ≤ k w f l	89	4	89
awesw s ± s ≤ a w e s y z s s u s ≤ k s s y	8:	9	8B
awesv s z s ≤	4	4	4
awfi t s ± s ≤ M w e s y s ≤ d w e s y s s .	9	4	9
T w t s ± s ≤	4	4	4
V 6 ± ± s v s ≤ a ± ± s	88=	C	899
aw . . v s ≤	8B	4	8F
awfi w s ≤	8	4	8

Unsur yang mempengaruhi : 4

Y... a... x x x x x x x x	Y... a... x	ω	Y x
p W G fi	bx 4bx	f..... x	p fi
	i fi	b fi	
/80	/90	/:0	/:0
awssasfls≤	89	9	8A
awssyws s≤	89	8	8:
T -	4	4	4
aw← s≤awt s s≤L s≤y	4	88	88
awfl sfi s≤d s	4	4	4
awssz -ss≤	=	;	87
ffwysfiU yy→	8	4	8
Twszs s≤ewzsvs Tww ts≤f fl fl	4	4	4
Us≤ffs≤	:8	87	A8

d fltw6ds tvC Ts≤ Tw fi-s≤cw es s≤fiewsz6lz z a≤ffvZ tv→er rfl ffzvflxry



$\frac{m}{jwx} - \text{D}\epsilon\tau$

c i i f U  
 i g l d H9BA  
 d x- R b w i x -z w z i- -z x R w X  
 i x wS y R 4A8A9

$\frac{0}{i} x$	$\frac{i \times 0 \times bx}{n \text{ hfi}}$	$\frac{c \times}{o \text{ fl}}$	$\frac{R \dots x \times}{o \text{ p u fi}}$	$\frac{0 \dots}{R \dots x \times q}$
/80	/90	/:0	/;0	/<0
Ss ≤ s -6r fl r	9A	97	88	:>
Ont s -6r vs r	:>	97	9A	9B
V s w6Wr ty	9B	9;	8B	::
J -6K zfi	::	8=	98	9B
V w6Wvz	9B	8=	89	::
S ≤6T flv	::	8;	8B	9A
S f6T ffi	9A	8=	8:	:8
Jy -6K x	:8	97	97	:8
dw wfl tw6dv vfi sv	:8	9A	9B	:7
Y ± tw6Zt ≤v	:7	8=	8	:7
W wfl tw6Y ≤ vfi sv	:7	8=	8>	9B
Mw wfl tw6V tvfi sv	9B	8B	98	9>

d fl tw6 ≤ tvC awesv-fs ≤ Wwyw-d-t fjs Twfs R6Mfi Sds ≤fir Nz z Ms

$\frac{m}{jwx -}$  DÆD

c i i f U  
 i g l d hbf S 5B9BA  
 d x- R wRw-i x -z w z i- -z x R w X  
 i x wS y R x c 4A8A9

$\frac{0}{i} x$	$\frac{i \times 0}{n} x \frac{bx}{hfi}$	$\frac{c}{o} x$ ofl	$\frac{R}{o} \dots x \frac{x}{p} \frac{x}{u} \frac{x}{fi}$	$\frac{0 \dots}{R \dots x} x$ q
/80	/90	/:0	/;0	/<0
Ss ≤ s -6r fl r	:A	88>	A:	>9
Ont s -6r vs r	>9	878	88;	<B
V s w6Wr ty	<B	⇒	:9	A>
J -6K zfi	A>	B;	87:	>A
V w6Wvz	>A	<B	⇒	>9
S ≤6T flv	>9	BA	87;	=
S -6T ffi	=	<B	;8	⇒
Jy -6K x	⇒	9A	::	>7
dw wfl tw6dv vfi sv	>7	9A	<B	; >
Y ± tw6Zt ≤v	; >	; 9	9;	⇒
W wfl tw6Y ≤ vfi sv	=	88>	87>	×
Mw wfl tw6Vtvfi sv	×	::	>B	:B

d fl t w6d ≤ tvC awesv f ≤ Wwyw-dt fys TwfS R6Mfi Sds ≤fir Nz z Mē

m  
jwx - DÆÆ

c i i f U  
i g l d H5B9A9@9BA  
d x- R b w i x -z w z i- -z x R w X  
i x wS y R 4A898 5A8A9

jx u fi	i xjx n hfi u fi	bx u fi	c x o fl	R ...x x o p u fi	0... R ...x x q
/80	/90	/:0	/:0	/:0	/<0
9787	8:	::	::	8;	8;
9788	8;	:<	::	88	88
9789	88	<7	;8	9<	9<
978:	9<	;A	;B	9;	9;
978;	9;	:9	::	8:	8:
978<	8:	;9	:<	97	97
978=	97	B:	AA	9<	9<
978>	9<	8<9	8=8	97	97
978A	97	97<	97<	97	97
978B	55	55	55	55	55
9797	98	9×	9>9	9A	9A
9798	9A	99<	998	9>	9>

Ls s s≤y≤vC Mb s sz ≤978B +s±w vw+6867C Nr rz fl≤r rffis ffi  
d fl t w6d≤ tvC awesv-fs≤Vwyw-d± fjs Twfs R6Mfi Sds≤fir Nz z Mz

$\frac{m}{jwx -}$  DÆƦ

c i i f U  
 i g l d H5B9A9B9BA  
 d x- R wRw-i x -z w z i- -z x R w X  
 i x wS y R 4A8985A8A9

$jx$ $u fi$	$i x jx$ $n hfi u fi$	$bx$ $u fi$	$cx$ $o fl$	$R \dots x x$ $o p u fi$	$0 \dots$ $R \dots x x$ $q$
/80	/90	/:0	/:0	/:0	/<0
9787	89;	=AA	=AA	=AA	89;
9788	89;	=99	=8:	=8:	8: :
9789	8: :	=7	<A8	<A8	8A9
978:	8A9	;A;	<A<	<A<	A8
978;	A8	;87	:B=	:B=	B<
978<	>	:<	:<7	:<7	>>
978=	>>	;9>	;9<	;9<	>B
978>	>B	;A8	<78	<78	<B
978A	<B	;7>	::9	::9	9;
978B	87	<89	:>A	:>A	89
9797	8=	9;=	9::B	9::B	:A
9798	:A	A:A	A:>	A:>	:B

d fl tw6d≤ tvC awesysv-fs≤Wnyw-dt fjs Tvfs R6Mfi Sds<fir Nz z Mk



m  
j w x - D E T G

i i f i g l  
d B9B9 B9BA  
R w R w - i x - z w R w X i x w S y R 4  
A8A8 w z A8A9

Y... f -x x p W fi Wfi	9797	9798
/80	/90	/:0
a v s s K s s v s s T z Z u d i r r f l u d v t z f i M z i r f f i	; A >	:: 8
a v s s L w s b z f i M z i r f f i	89	A
a v s s a s w s v f i s a v z f i M z i r f f i	8	9
a v s s T z J s s U z u d v t z f i M z i r f f i	8;	98
a v s s U s f i U s s e r t M z i r f f i	8 B < 7	: > =
<b>Y x q fi</b>	<b>9 ACA</b>	<b>E: E</b>

d f l t w e d s t v C a w s v s v f i s W y w - d t f y s T w s R R M f i S d z s s t i r N z z M s

$\frac{m}{jwx} - D\bar{E}H$

c i f U i  
 R i d hbf S d  
 m m 5B9BA  
 d x- Rw-i x -z w z i- -z x R w Xh-  
 R fw zw x c jw w j- w h- - y 4  
 A8A9

f...x xGfi					
0 x i	i x 0 x bx n hfi i	c x 0 x o fi i	Y x p fi	R zxy V U	Rx x fi
/80	/90	/:0	/:0	/:0	/:0
Ss ≤ s -6Tr fl r	;	=	D7		9
Ont s -6Pvs r	;9	;7	E9		<
V s w6Wr ty	::	;9	EB		>
J -6K zfi	;=	9A	DA		<
V w6Vvz	;9	98	C:		9
S ≤6T flv	:B	<7	EF		>
S fi6T ffi	;8	9A	CF		;
Jy -6K x	98	9=	AD		8
dw wfi t w6dv vfi sv	97	::	CA		<
Y ± t w6Zt ≤v	9=	:7	BC		;
W wfi t w6Y ≤vfi sv	97	::	B:		;
Mw wfi t w6Vtvfi sv	8<	8<	:7		;



Vn" w@n" anor y5M-'' ff' ff' q anoy : 4 4

$i$	$R \dots x$ $c \text{ fi}$	$R \dots x$ $U \text{ fi}$	$R \dots x$ $n$	$R z \dots$ $W$	$j -x R \dots x$ $j n$
/80	/=0	/>0	/A0	/B0	/870
Ss ≤ s -6Tr fl r	9A	4	4	4	8
Ont s -6Pys r	:B	4	4	4	4
V s w6Wr ty	:B	4	4	4	4
J -6K zfi	:8	4	4	4	4
V w6Wvz	9;	4	4	4	4
S ≤6T flv	;A	4	4	4	4
S fi6T ffi	4	4	4	4	
Jy -6K x	9>	4	4	4	4
dw wfl t w6dv vfi sv	:A	4	4	4	4
Y ± t w6Zt ≤v	: =	4	4	4	4
W wfl t w6Y ≤vfi sv	: >	4	4	4	4
Mw wfl t w6Nvtvfi sv	:7	4	4	4	4

d flt w6d ≤ tvC awesv -fi ≤ jysfl s as ≤ vs ≤ Tvfi R6Mfi Scvfi z ≤ Ms svar flur fl

m  
jwx - DÆ7

c d d i R  
f d d m m 5B9BA  
d x- l - y-P w m - w z R z - Rw-x  
S y jw w j- w h- - y 4A8A9

	Y... ax φ Wi			
a.zx xx o fl	aRhj Y Uff	f....x xx Ufffi	a....x x T ...x-x Nx l fi r U fi W	f....x x T l fi b
/80	/90	/:0	/:0	/:0
a-sy -	4	9	4	4
Ksv—	4	4	4	4
d-tsts ≤	4	4	4	4
U fl	4	4	4	4
d-tsts ≤	4	4	4	4
as ≤ s ≤	9	8	8	4
e ±s	4	4	4	4
ds v±	8	8	4	4
es -s ≤ Wb fi-	8	4	4	4
d-sz -	4	4	4	4
T fis	4	4	4	4
d ±fl	4	4	4	4
d ±fl Ks s	4	4	4	4
as s ± e t	4	4	4	4
Ks	4	8	4	4
d Psv	4	4	4	4
J-sfl Mw -	4	4	4	4
Ks f s s	4	4	4	4
V s-sfl s	4	4	4	4
d-s	4	4	4	4
<b>jx x j... x</b>	<b>A</b>	<b>B</b>	<b>8</b>	<b>4</b>



Vn" w@n" anor ySM- " ff' ffr q anoy : 4 B

	Y... ax 6p Wf				
a.zx x x o fl	f...z.x i... x o fi Ufl	f.....y x j...x-x f..... x o s	j -x f -x x f...-x x x e x d fi p fi	bx x k	Y x p fi
/80	/=0	/>0	/A0	/B0	/870
a-5y -	8	4	4	4	:
Ksv—	9	4	4	4	9
d-tsts y ≤	4	4	4	8	8
U fl	4	4	4	4	4
d -tsts y ≤	4	4	4	4	4
as≤s≤	>	4	4	8	89
e ±s	8	4	4	4	8
ds v±	8	4	4	8	A
es -s≤W6 fi-	4	4	4	4	8
d-sz -	4	4	4	4	4
T fi y	8	4	4	4	8
d ±fl	4	4	4	4	4
d ±fl Ks s	8	4	4	4	8
as s † e t y	4	4	4	4	4
Ks	4	4	4	4	8
d Psv y	4	4	4	4	4
J y sfl Mw -	4	4	4	4	4
Ks f s s	4	4	4	4	4
V s y sfl s	4	4	4	4	4
d-s y	4	4	4	4	4
<b>j x x j... x</b>	<b>8A</b>	<b>4</b>	<b>4</b>	<b>:</b>	<b>9D</b>

d fl t w6 s tvC M s avfl twvs s s sawvfl s s vs sawvfl s y s j s ± T s s w s s s f r e w s y z h s i vfl - Ofi ≤ v fi vfl r fl u  
 My z f i a s v t z s f z tv s v r r fl f f e v f i x r y c v x v f l t

m  
jwx -

D E A 9  
c p S i e  
i d H R I f c i  
S 5B9BA  
d x- h- z- i x wR w X P f- - w x  
j - R w - w z c 4A8A9

Y... a..x x x p W	fx x akVf6 kk U W fi W	Yx x ffi fi	O x G T.y. x b fi fi	c x ... i fi
/80	/90	/:0	/;0	/<0
ewzsvs Tww ts<6XrZl Z uv	8< 4B8	:	4	8
awfl ts<5 s<6Mfi zfl	8A>4BAA	4	4	8
V wfl sfi V s ws<6l s d r fi 5W v P<xv	9< 49>	4	4	4
Tw fss<6Ntvft	9A84B>	<	8	8
aw..v<5<6Qr fi s ffi x	:7:	:	:	8=
awsu fts<6Uzflr zfl	:9; 4: =	8	8	4
awfl t ≤ z s<6W uv	: A4 <7	9=	9=	:7
awsy s<5 s s<6l ffi x	:<4 <=	89	89	88
awsu s<6eyvw	:>4 =;	87;	A=	>8
awsfl ts<6c ssv	:<=	8=	88	8:
V wfl ws 6l wesy s<6s fl 6l ffi r r zffi x 5 ey vr vfi zfl	:<A4 =B	8	4	4
awsy wfs s<6O fi sv ffi vfl	:>94 >	B	8	:
aws< s<6P r u	:>A4 B<	:	4	9
V w s<6Ks s<6Vv ≤ zfl Svfi	;7=4; 87	4	4	4
aws vszs<6Pvfi zfl	; A74; A8	8	4	<
Nt ≤ fl <6Pzfl r ffi	f f M M 5<6<	4	4	4
Vt ± <6Yr t s z	f f : <67B	A=	AAB	ABA
T 6M< zfl	f f 97678	<	<	<
awvsy s<6V s s<6Q fi r fl er ffi x	f f 9867>	4	4	4
aw<5 s<6Pz yv	f f : 867;	:	:	8
T M e 6N sfi v z qz ffi tv	f f 9: 67;	4	4	9
awfsv <6V s s<6Y zfi a s vt zfl	f f 9: 679	>>	<	<<
Us <6f z yv	4	=	B	=
<b>Y x p fi</b>		<b>88: E</b>	<b>8 879</b>	<b>8 89F</b>

Vn" w@n" anor ySM- " ff' ffr q anoy : 4 46

Y... a..x x x p W	fx x akVf6 kk U W fi W	N U	O x G c ... i	Y f
/80	/90	/=0	/>0	/A0
ewzsvs Tww +ts<Kxrzi Z uv	8< 48A8	4	=	>
awfi ts>S s<MAsi s zfi	8A>48AA	9	8	4
V wfi sfi V s ws-6d s 6d rfi 5W v P≤xv	9< 49>	4	4	4
Tw -fss<Nvtvfit	9A849B>	4	4	4
aw..v-s<Qr fi s ffix	: 7:	89	A	87
awsu fi>S s<Uaiflr zfi	: 9; 4: =	4	4	8
awfi t ≤ zS<W uv	:: A4 <7	9>	9A	9A
awsy>S s s<L ffix	: <4 <=	8:	8:	8>
awsu s<eyvw	: >4 =	A9	AA	⇒
awsfi ts<C ssv	: =<	8<	8:	89
V wfi ws 6V wesy>S sfi 6L ffix r zfix 5 ey vr vfix	: =A4 =B	4	4	4
awsy>S s s<Oñ sv ffix vfi	: >94 >	4	:	:
aws< s s<P r u	: >A4 B<	;	8	8
V w s±Ks s>6V ≤ zfi Svfi	; 7=4; 87	4	4	4
aws>S zS s<P r zfi	; A74; A8	=	A	A
N± ≤ fi -Sp r fitz r fi	f f MMs 5<6<	4	4	4
W± ± s>6 r t≤z	f f : <67B	B78	B8B	B<B
T -6M< zfi	f f 97678	=	=	=
aw>S s>S s<V s s<6Q fir fi er tfix	f f 9867>	4	4	4
aw>S s s<P z yv	f f : 867;	4	4	4
TMe6V sfi v z gzf fitv	f f 9: 67;	:	:	:
awfi>S s>S s<6V zfi a ≤ vt zfi	f f 9: 679	<	<	; <
U< ≤ fi <6 yv	4	88	<	=
<b>Y x q fi</b>	<b>88: B</b>	<b>88BC</b>	<b>88D:</b>	



Vn" w@n" anor ySM- " ff' ffr q anoy : 4 476

Y... a..x x x p W	fx x akVf6 kk U W fi W	Y f	O x G N U	i ... ..y... o fl
/80	/90	/80	/870	/880
ewzsvs Tww ts<6KxrZl Z uv	8< 48A8	B	4	4
awfl ts<5 s<6Mfi s zfl	8A>48AA	4	8	8
V wfl sfi V s ws-6d s 6drfi 5W v P< xv	9< 49>	4	4	4
Tw -fss<6Nvtvfl	9A849B>	4	89	89
aw . .v-s<6Qr fi s fflx	: 7:	B	=	=
awsu fts<6Laur zfl	: 9; 4: =	8	4	4
awfl t ≤ z s<6W uv	: : A4 < 7	9>	9>	9:
awsy s< s ss<6L fflx	: < 84 < =	89	89	89
awsu s<6eyvw	: > 94 =	; :	8; :	8: 9
awsfl ts<6c ssv	: =	8<	;	;
V wfl ws 6l wesy s<6s fl 6L fflx r zfl x 5 ey vr vfl zfl	: = A4 = B	4	8	8
awsy wfs s<6O fi sv fflx vfl	: > 94 <	:	A	A
aws< s<6P r u	: > A4 B<	9	:	:
V w s<6Ks s<6Nv ≤ zfl Svfi	; 7=4; 87	4	4	4
aws vszs<6Pvfl zfl	; A74; A8	>	;	;
Nt ≤ fl -Pzfl r fl z fl ffl	f f MM6 5<	4	4	4
V6 ± ts<6Yr t s z	f f : < 67B	B< 9	A; A	A; =
T 6M< zfl	f f 97678	<	;	;
awvsy s<6s s<6V s s<6Q fir fl er fflx	f f 9867>	4	4	4
aw ts<6s s<6Pz yv	f f : 867;	4	8	8
TMe 6Nfi v z qz fflx tv	f f 9: 67;	:	;	;
awfiv s<6s s<6L y zfl a s vt zfl	f f 9: 679	; <	A=	A<
Us s<6f z yv	4	<	:	:
<b>Y x 6p fi</b>		<b>88: E</b>	<b>88BE</b>	<b>88AF</b>

Vn" w@n" anor ySM- " ff' ffr q anoy : 4 46

Y... a...x x x		fx x akVf6		O x G	
p	W	U	k fl	j fl	Y fl
		W fi	k fl	j fl	Y fl
		W			
/80		/90	/890	/8: 0	/8: 0
ewzsvs	Tww ts s<Kxrzi Z uv	8< 48A8	4	4	4
awfi ts s<Kxzi s zfi		8A>48AA	8	8	8
V wfi sfi	Vs ws< d s d r fi 5W v	9< 49>	4	4	4
P< xv					
Tw	fi s<Nvtvfit	9A849B>	88	88	88
aw.	v s<Qr fi s ffix	:7:	=	:	:
awsu	fi s<Uziflr zfi	:9; 4: =	4	4	4
awfi t	s z s<W uv	: A4 <7	99	99	99
awsy s< s s s< ffix		:<84 <=	88	88	88
awsu	s s<eyvw	:>94 =>	8:9	8: <	8: B
awsfi	ts s<c ssv	:<=	:	:	:
V wfi ws	6V w s y s s u fi 6L ffit ffi r zfi x 5	:>A4 =>	8	8	8
ey vr	vfi zfi				
awsy wfi s	s<Qr fi s v ffix vfi	:>94 <	A	A	A
aws	s s<P r u	:>A4 B<	:	:	:
V w	s s<Ks s y 6Nv s zfi S vfi	:7=> 87	4	4	4
aws v s z s	s<P v fit zfi	: A74; A8	:	:	:
N s	s fi s<P zfi r fi r ffi	f f MM6 5>6<	4	4	4
V6	ts s<6/r t s z	f f : <67B	A; <	A; :	A; B
T	6V s zfi	f f 97678	:	:	:
awv s y s y s	s V s s s<6Q fir fi	f f 9867>	4	4	4
er	tfi zfi				
aw	ts s s<P z yv	f f : 867;	8	8	8
T Mc	e N s i v z q z f i t v	f f 9: 67;	:	:	:
awfi s	y s s s<6V zfi a s vt zfi	f f 9: 679	A<	A>	AA
U s	s fi s<6 z yv	4	:	:	:
Y x 6p fi		8 8AB	8 8AC	8 8BD	

d fl t w6d s tvC U wfi ts y awfi s s s s s<T w fi 6B d t f y s 6 d z s s<6 r M fi S K awfi z v fi z

$\frac{m}{jwx} - D\bar{E}7AA$

c p S e i d HR  
 l f c d 5B9BA  
 d x- h- z- i x wR w Xf- - w x  
 i- 4A8A9

$\frac{0}{i}$	$Y... a..x \omega$	$\frac{Y}{p}$	$\frac{x}{fi}$
$\frac{bx}{i}$	$\frac{4bx}{fi}$	$\frac{f.....}{b}$	$\frac{x}{fi}$
/80	/90	/:0	/:0
Ss ≤ s -6Tr fl r	888>	98	88: E
Ont s -6Pvs r	85A;	8A	8879
V s w6Wr ty	887B	97	889F
J -6K zfi	888<	97	88: B
V w6Wvz	88: ;	99	8 8BC
S ≤6T flv	88<9	98	88D:
S f6T ffi	888B	8B	88: E
Jy 6K x	88: B	8B	88BE
dw wfl tw6dv vfi sv	88: 8	8A	88AF
Y ± tw6Zt ≤v	889A	8>	88AB
W wfl tw6Y ≤ vfi sv	889B	8>	88AC
Mwvfl tw6Vtvfi sv	88: 7	8>	88BD

d fl tw6 ≤ tvC Uvfl tsys awfl s s s s ≤ Twf8 B dt fys6dz ≤ffr Mfi SK avflz vfl x

**m**  
**jwx - DEAB**

**c p S e i d BR**  
**l f c d 5B9AH89BA**  
**d x- h- z- i x wR w Xf- - w x**  
**i- 4A89G5A8A9**

<b>jx</b> <b>u fi</b>	<b>bx 4bx</b> <b>i fi</b>	<b>Y... a..x</b> <b>f..... x</b> <b>b fi</b>	<b>Y x</b> <b>p fi</b>
/80	/90	/: 0	/: 0
978A	88; =	: 7	8 8DC
978B	88AB	9B	8 98E
9797	88: <	8A	8 8B:
9798	88; 7	8 >	8 8BD

d fl twéd≤ tvC Uwl tsys avfl s s s s s≤T w s B d t f y s c d z s s t r M f i S K avfl z vfl x

m DEAC c p S e i d BR  
 j wx - l f U 5B9BA  
 d x- h- z- i x wR w Xf- - w x  
 S y -4A8A9

jx u fi	R	Q	Y x p fi
/80	/90	/:0	/:0
9798	: B>	>7	83BD

d fl t w6d≤ tvC Uwl t sys awfl s s s s s≤Tvw R d t f y s 6 t z s t r Mfi SK avfl z vfl z

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**DF** i Vknf Ra Rg URg ebg Ydng YRg  
 We ki XlV PdS Tdl Xhe dc Tdj

$\frac{m}{j_{wK} -}$  **DF A** i k m f l i  
 S m m U d  
 m m 5B9AI 6B9BA  
 f- y- w- W - z x e - i w j -  
 S - j w w j- w h- - y 4A89H5A8A9

i x f... x xxx 0x x j... x	j x	6u fi	
o fi Y	978F	9797	9798
/80	/90	/:0	/:0
V f+dwes— dvffiz flv yz	=A3=	=3A	>3=
T ≤ s+dw s Mfl rt Scvfl	893-B	8<3 =	8; 3<<
Kwt s dw s P vv s+cvfl	8>3:	8=3-8	8: 3-9
c fl sz M= s R ≤ v s+IN	83 B	83<	83=
Us ≤ s Z yv	73<	4	4
Y x 6p fi	87737	87737	87737

d fl t w6d ≤ tvC Kad3d w-d s+flN± ≤ fl -V6 -s+fi/d ves 06Lad3d r z z 9lu≤0v x 2Yr z dlr fl s+zrt s+fi z d v

$\frac{m}{jwx} - DF7B$

i k m f c R k  
 m d m m 5B9AI 6B9BA  
 f-y-w-W-zxj-cw cw-w j-  
 mz-fw h jww j-wh-y4  
 A89H5A8A9

Y... Nx j..yx x p i f i f i p s l f n	978F	9797	9798
/80	/90	/:0	/:0
Kw ≤ Mfit v v	73<	73 =	73 8
Pw≤wey ezff	73A	737	839
J t w K s v ≤	73A	739	73>
dwey kzft	B; 3 <	B=98	B<98
Ksft t Gs Gd-s Gswsfi ER. tGv ≤ Ksft t h vGd r SPz v svarffi e vvSWrw	93=	937	939
Us<≤s Z yv	83 7	737	737
<b>Y x p f i</b>	<b>87737</b>	<b>87737</b>	<b>87737</b>

d f i t wGd ≤ tvC Kad3d w-d sfi t ≤ fi -V6 -sfi/d w s 06Lad3d r z z s l u s i v z 2Yr z s i r f i t z s r t s i s i z d v

$\frac{m}{jwx} - DFX$

i k m f c U m  
 d m m 5B9AI 6B9BA  
 f-y- w- W - z x j -c w c w- w j -  
 m z- fw mw j w w j- w h- - y 4  
 A89H5A8A9

Y... R - j... x p i f i f i f i p s l f s f i	978F	9797	9798
/80	/90	/:0	/:0
ewfl t ± L ±ff	;83<	; >7;	<83 9
Ts 6as s ≤ h ≤u	<A3;	<93>	;A3>
Ksfl t vs ≤l s ≤s Lr f i s ≤r f l u Z y v	737	738	73A
Y x φ fi	87737	87737	87737

Ls s s ≤ v C    8 ewfl t ± F ewfl t ±2 afw w J ≤ s f i s ≤ K s f l t 6 t s s  
 9 Ts F Ts 6as s ≤2 Ks s y Ts 2 J ≤ s f i s ≤ K s f l t  
 d fl t w 6 d ≤ t v C    Kad3d w-d -s f i n t ± ≤ f i -V6 -s f i v d    w s 0 6 l a d 3 d r r z z 9 l u s i v z 2 Y r z s i r f i s z s t s i s i z d v

$\frac{m}{jwx -}$  DFD

i k m f c e m  
 d m m 5B9AI 6B9BA  
 f-y w- W - z x j - c w c w- w j -  
 m z- fw mw j w w j- w h- - y 4  
 A89H5A8A9

Y... bx x j... x p i f i f i f i p s l f i b	978F	9797	9798
/80	/90	/: 0	/: 0
0 x j x x j hfi	FF37	FF37	FF3E
V s fl w6l w s fl ± p s ≤ -6as ± w6g ≤ 6l s w W r s f f 5 W r r f i ± 5 Q r f l z v 5 a r v 5 g d l f f i M v	8A3B	983⇐	9<3 A
ewj w f e w s e z f i 5 e v r ≤	83<	73>	73=
d w l w ≤ M f i v f l	⇒ 3:	⇒ 7<	⇒ 8A7
T s h ≤ u	8; 3;	8 < ⇒	883>
K s f l t 6 s ± s f i - s w e s z L r f i s ≤ s V ≤ b r f i h ≤ u	4	73-B	737
j x x -x b x x h f i f i k	737	73A7	73B9
Y x 6 p f i	87737	87737	87737

d fl t w6d ≤ tvC Kad3d w-d s f i t ± ≤ f l -W6 -s f v d w s 0 6 l a d 3 d r z z s f l u s i l v z 2 Y r z d i r f i t z s r t e l i f i z d v

$\frac{m}{jwx -}$  DFE

i d k m f e e i d  
 f - y - w - W - z x U 5B9AI 6B9BA  
 h - - y 4A89H5A8A9 P -w jw w j- w

b x bx x b U fi / °0	978F	9797	9798
/80	/90	/:0	/:0
E 97	; 3>	: 3AA	< 3 8
97 4; B	< 3 >	< 9 >	; BBA
< 4 < B	B 3 8	AB =	873 <
⇒ 4BB	993 7	9 > <	9 < 3AA
877 48; B	< 8 <	: 3 =	< 3 =
8 < 72	83 9	: 3 8	93-B
<b>Y x 6 p fi</b>	<b>87737</b>	<b>87737</b>	<b>87737</b>

d fl t w6d ≤ tvC Kad3d w d -sfnt ± ≤ fl -V6 -sfv/d w s 06L ad3d r z z s lu s lv z 2Yr z s lr f b s z s r t s i s i z d v

$\frac{m}{jwx} - DFF$

i k m f l R f  
 d m m 5B9AI 6B9BA  
 f-y- w- W - z x j - c w i y- S  
 mw- jw w j- w h- - y 4A89H5A8A9

$\frac{i y \dots N c}{p i f i o Y s f i}$	$j x \omega f i$	978F	9797	9798
/80	/90	/:0	/:0	
J-Twfl s s≤Kwfl w± artffxvu h r v		73A	73<	73A:
J-R-f f s y c v f f f r v		8: 3A	8=>	883;
J-Uw s y h r v d f f i		8; 3A<	8A3A;	8=3B
d fl K 6a fl s h v f f f i z f f u f i		: 3B	83<	>39
d fl ew f s y s y M ≤ v h v f f i		8=>:	8>37	873=
d fl e-v s ±ew f s y s y f f l t ≤ v h v f f i		>3B	<3B<	=3B;
V s s J-ew f s y s y M ≤ v d z f x		9B3B<	9B37<	9<38
V s s J-e-v s ±ew f s y s y f f l t ≤ v d z f x		<3A	>3A	8B3;
J-aw fl ±s s ≤ d w t v r v		>3B>	93B	83B
J-Q s s ≤ c r z f h r v		73=	73:	4
U s ≤ s Z y v		4	4	4
<b>Y x 6 p f i</b>		<b>87737</b>	<b>87737</b>	<b>87737</b>

d fl t w 6 d ≤ t v C Kad 3 d w d s f i t ± ≤ f l - v 6 - s f v d w s 0 6 l a d 3 d r z z z 5 l u s i v z 2 Y r z s i r f f i ± z s r t s i s i z d v

$\frac{m}{jwx} - DFG$

i k m f l i  
 n d m m 5B9AI 6B9BA  
 f-y- w- W - z x j -c w i y- b  
 jw w j- w h- - y 4A89H5A8A9

i y...f.....x x k x x p i f i o h	jx ω fi	978F	9797	9798
/80	/90	/:0	/:0	
U- ±aUW aVY Ofit zZ	BA3;	B<B<	B⇒7	
U- ±W ≤aUW Y≤fi aVY Ofit zZ	73<	979	73A	
K ±≤U- ± Y≤ Ofit zZ	8B:	93A:	: 3B:	
<b>Y x ω fi</b>	<b>87737</b>	<b>87737</b>	<b>87737</b>	

d f i t w 6 d ≤ t v C Kad 3 d w d - s f i t ± ≤ f i - W s - s f i d w s 0 6 L a d 3 d r z z 5 l u - s l v z 2 Y r z d i r f i t ± z s r t - s i - s i z d v

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$\frac{m}{jwx} - DFH$

i k m f S S n  
 n f d m m 5  
**B9AI 6B9BA**  
 f-y- w- W - z x j - U - c w k -  
 R j w w j- w h- - y **4A89H5A8A9**

$0x \times 0x \times k \times x k$ $p \quad b \quad i \quad f \quad q$	$c \dots x x$ $W$	$jx \quad \omega \quad fi$
/80	/90	/:0
U- ± Ofit z	4	73 8
Ps 6Nv ... Qr 5/aQ	>73<	= 38
V ≤ s ± es sz Ur ≤ zlv	: 3:	93A
Ts Ks ±s Pzv ≤ su	9<3A8	: 73>
Us << s Z yv	73=	4
e-vs ±V wfl s s ± N ≤ fl ≤ M ≤ fflx	73B	83>
<b>Y x 6p fi</b>	<b>87737</b>	<b>87737</b>
		<b>87737</b>

d fl t w6d ≤ tvC Kad3d w-d s fin ± ≤ fl -W6 -s fiv/d w s 06L ad3d r z z 5lu s lv z 2Yr z s ir ffl s z r t s i s i z d v



$\frac{m}{jvx} - D77$

i k m f W m  
 S R d m m 5B9AI 6B9BA  
 f- y- w - W - z x j - Uwy j w w  
 j- w h- - y 4A89H5A8A9

Tx x j... x 0 x N p bfi	jx 6r fi	978F	9797	9798
/80	/90	/:0	/:0	
Jvs3v-y s±s±zs±s Jce wsv—	=9B=	=3B:	>83B	
Jvs3v-y s±s±tw sfls Jce flsz s±yys w w±	73B:	837	937	
Jvs3v-VLT ±fl ±fi	4	4	738	
Jvs3v-VLT ffl fl 6-s s ≤fl w±y ±s±	738	737	839	
Jvs3Jce -vs ±fl w±y ±s±	73A	73<	737	
e-vs ±vs xs fi-s	:<3A9	:83-9	9;3>	
<b>Y x 6r fi</b>	<b>87737</b>	<b>87737</b>	<b>87737</b>	

d fl t w±d± tvC Kad3d w-d -sfi±± fl -V6 -sfi/d w± 06Lad3d r z z fl u±lv z 2Yr z sfl r fl ±zsr±fi± z d v

$\frac{m}{jwx -}$  DF7A9

i k m f m i  
 R S d m m 5B9AI 6B9BA  
 f-y-w-W-zxj-ej-jww  
 j-w-h-y 4A89H5A8A9

$j... x f... y x x N 0..x$ $p k p$	$jx \omega fi$		
	978F	9797	9798
/80	/90	/:0	/:0
Uwz J sy s	B83B:	AB3 8	B; 3-A
afwys wsys≤	: 3 A	<B>	: 3A
L t fi d l w l fi sy	<3 B	; 3A	83A
<b>Y x ω fi</b>	<b>87737</b>	<b>87737</b>	<b>87737</b>

d f i t w 6 d ≤ t v C Kad3d w-d s f i t ≤ f i -V6 -s f i / d w s 0 6 l a d 3 d r z z s i u s i v z 2 Y r z s i r f f i s z s t s i s i z d v

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$\frac{m}{jwx -}$  DFFAA

i k m f W m  
 i R d 8m d m  
 m 5B9AI 6B9BA  
 f- y- w- W - z x j - Uwy j w w  
 j- w h- - y 4A89H5A8A9

$j \dots x f \dots y x x N a x 6$	$j x \omega fi$		
$p b fi Y fi b$	978F	9797	9798
/80	/90	/: 0	/: 0
es sy ± dw - f d a j U dv z f f e r f f f s d a k V	> 8 3 9	> ; >	> ; >
T f s f l 6 d s s z 6 d s y s 6 N b s 6 b s a s f l u s c z v P a f i u s c z v S v f f v	8 9 9 =	8 < >	8 > < A
U t s y e s s z 6 a s ≤ s 6 e s s z l s s y 6 l v t ≤ Q ≤ f l u R ≤ f f s l v r t y s e v r a f s Q r u v f l	8 9 3 7 A	; 3 >	< >
l s ≤ s Z y v	: >	< 8;	9 3;
<b>Y x φ fi</b>	<b>87737</b>	<b>87737</b>	<b>87737</b>

d f l t w 6 d s t v C Kad 3 d w d s f i N t ≤ n - N b - s f i d w e s 0 6 l a d 3 d r z z a 9 l u s i v x 2 Y r z s i r f f i s z s v t s i s i z d v

$\frac{m}{jwx -}$  **DFAB**

i k m f d l  
 d m m 5B9AI 6B9BA  
 f- y- w - W - zx iw w R z jw w  
 j- w h- - y 4A89H5A8A9

jx u fi	a - ix x 6of fi W		
	bx x	j -x bx x	j x
/80	/90	/:0	/:0
9788	; ; 3A>	<< 38:	877377
9797	; B3>	< 73:	877377
9798	< 3<	; 93;	877377

d fl t w 6 d ≤ tvC Kad3d w-d s fi N t ≤ fi - W s - s fi / d w s 0 6 L a d 3 d r z z t 9 l u s i v x 2 Y r z s i r f i s z s i t s i f i z d v

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$\frac{m}{jwx} - DFAC$

ce R en f  
e a d m m 5B9BA  
d x- i- y- w z j i -T -  
jw w j- w h- - y 4A8A9

bx x x -x N x bx x x o fi p	Y x p fi
/80	/90
Twevs sss≤awesys± dsfl sz c vs Nfl s P≤ 3h yvvf@r srxvgyvzffi	4
e ±awesys± dsfl sz / ≤0 N fi e tff. flz /	=
Twevs sss≤awesys± dsfl sz c vs eys / ≤0 ey vv3h yvvf@r srxvgyvzffi. flz /	;
ewfl s awfl t ssys≤j ±- hr v Vrflu ffi	8
U s J wfiwfl s awfl t ssys≤j ±-/Qs0 K vr swh r v Vrflu ffi.yr/	; 37
g fi fl wdsfl sz M-ewfl s awfl t ssys≤j ±-/e ≤Qs θ g-ffifi v swh r v zfl Vrflu ffi. sflSur /	: 3 7

d flt w6i≤ tvC M-s U-sy± ssys≤Q+ Tst s wses s≤ fiwesy sz 60fl z sflfi vfl Z tv sver rfl fiweflxry cvxvflit

**BAB**  
Chapter

**05**

# **PERTANIAN, KEHUTANAN, PETERNAKAN, DAN PERIKANAN**

*Agriculture, Forestry, Livestock, and Fishery*

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**i Vg cVeRI Rg mVdgB**

**j TRWdXPb de j Ti**

74 Mn<sup>Ⓞ</sup> -x-x<sup>Ⓞ</sup> nz n<sup>°</sup> • n<sup>°</sup>tn<sup>°</sup> n<sup>°</sup>t  
 qx z • x<sup>Ⓞ</sup>n<sup>°</sup> -y<sup>u</sup> Knqn<sup>°</sup> [ °n<sup>Ⓞ</sup>  
 ' °n<sup>Ⓞ</sup>°x nqnyu y n<sup>°</sup> • n<sup>°</sup>r<sup>°</sup> qn<sup>°</sup>  
 • ..q x<sup>Ⓞ</sup>v<sup>Ⓞ</sup> °.un<sup>°</sup>y • r...urx<sup>Ⓞ</sup>./4  
 [ ..q x<sup>°</sup>v °n<sup>°</sup> nz n<sup>°</sup> • n<sup>°</sup>tn<sup>°</sup>  
 z r... nxn<sup>°</sup> un<sup>°</sup>y • r.xny<sup>n</sup> n<sup>°</sup> °n. n  
 y n<sup>°</sup> • n<sup>°</sup>r<sup>°</sup> qr<sup>°</sup>tn<sup>°</sup> • ..q x<sup>Ⓞ</sup>v<sup>Ⓞ</sup>4

84 ' r<sup>w</sup>mx 867B2 qn<sup>Ⓞ</sup> y n<sup>°</sup> • n<sup>°</sup>r<sup>°</sup>  
 • nqv qv r. :y<sup>u</sup> qn.v.un<sup>°</sup>y ° ..rv  
 xr.n<sup>°</sup>txn °nz • ry n.r.n .U J/4  
 ' roryz • r<sup>°</sup>r.n<sup>°</sup>n<sup>°</sup> U J2 qn<sup>Ⓞ</sup>  
 y n<sup>°</sup> • n<sup>°</sup>r<sup>°</sup> • nqv qx z • x<sup>Ⓞ</sup>n<sup>°</sup>  
 z rny v • ry<sup>n</sup> - .n<sup>°</sup> qn<sup>Ⓞ</sup> °n<sup>Ⓞ</sup>°x  
 • r. °n<sup>°</sup>v<sup>n</sup> ' . [ / -y<sup>u</sup> Ur. nyn  
 Lnon<sup>°</sup>t M<sup>v</sup>n<sup>°</sup> .ULW qr<sup>°</sup>tn<sup>°</sup>  
 z r<sup>°</sup>tt "nxn<sup>°</sup> °rwz ynu  
 • r<sup>°</sup>qr<sup>x</sup>n<sup>Ⓞ</sup>2 °r. r. °v<sup>°</sup>z  
 oy-x • r<sup>°</sup>tn<sup>v</sup>n<sup>°</sup>2 • r<sup>°</sup>tt "nn<sup>°</sup>  
 or<sup>°</sup>w qn<sup>°</sup> r r4<sup>°</sup>fz nff5

94 J<sup>°</sup>txn. :.q x<sup>Ⓞ</sup>v<sup>Ⓞ</sup>° .nqv<sup>w</sup>mt "t2  
 qn<sup>°</sup> xrq<sup>r</sup>ynv qv r. :y<sup>u</sup> qn.v.un<sup>°</sup>y  
 ' ..rvbo<sup>v</sup>n<sup>°</sup> qr<sup>°</sup>tn<sup>°</sup> z rynx xn<sup>°</sup>  
 • r<sup>°</sup>tx .n<sup>°</sup> qn.v. un<sup>°</sup>y ' ..rv  
 bo<sup>v</sup>n<sup>°</sup> qr<sup>°</sup>tn<sup>°</sup> z rynx xn<sup>°</sup>  
 • r<sup>°</sup>tx .n<sup>°</sup> un<sup>°</sup>y • n<sup>°</sup>r<sup>°</sup> • nqn  
 • y. © or...x .n<sup>°</sup> 8z z 8z z 4  
 Uu ° ° " © x. nqv<sup>w</sup>un<sup>°</sup>y • n<sup>°</sup>r<sup>°</sup> qv  
 x ..qnynz or" © x Pnonu Ur .v<sup>°</sup>t  
 [ n<sup>°</sup>r<sup>°</sup> .PU [ / n<sup>°</sup>t qx-<sup>°</sup> r. :v xr  
 qnynz Pnonu Ur .v<sup>°</sup>t Pw<sup>°</sup>t .PUP/  
 qr<sup>°</sup>tn<sup>°</sup> z r<sup>°</sup>tt "nxn<sup>°</sup> n<sup>°</sup>txn  
 x-<sup>°</sup> r. :vPU [ xr PUP un<sup>°</sup>y' ..rv  
 U-<sup>°</sup> r. :v Pnonu xr Kr.n<sup>°</sup> 867B4

85 aur z n<sup>v</sup> qnfh s--q p. : ° p-y<sup>r</sup> pff q  
 p-<sup>°</sup>v<sup>ff</sup> o L [ ' 4 fhff<sup>°</sup>ffp<sup>°</sup> S' q-<sup>°</sup>r<sup>°</sup>v<sup>n</sup>  
 n.r.un..r<sup>°</sup>ff q n.rnn<sup>°</sup>q • ..qffp<sup>v</sup>ff  
 / v<sup>°</sup>q • r...urp<sup>fh</sup>.r.05 [ ..qffp<sup>ff</sup>-<sup>°</sup> v<sup>°</sup>  
 f<sup>ur</sup>.r. :ff<sup>ff</sup>-sz fhff<sup>°</sup> xpn<sup>ff</sup>-<sup>°</sup> orff rr<sup>°</sup>  
 un..r<sup>°</sup>ff q n.r.n n<sup>°</sup>q • ..qffp<sup>v</sup>ff 5

95 ' v<sup>°</sup>pr 978C3 • nq q un..r<sup>°</sup>ff q n.r.n  
 qnfh un r orr<sup>°</sup> -offv<sup>°</sup>r q s.-z  
 f<sup>ur</sup>.r. :ff<sup>ff</sup> -s f<sup>ur</sup> K.r.n 'nz • y<sup>°</sup>t  
 P.nz r /K' P0 ' f<sup>ff</sup>.r 5 Lrs-.r. f<sup>ur</sup>  
 v • yz r<sup>°</sup> fhff<sup>°</sup>-<sup>°</sup> -s K' P3 f<sup>ur</sup>  
 r.r. p-y<sup>r</sup> pff q f<sup>u</sup>.-ff t u f<sup>ur</sup>  
 Kt .v<sup>ff</sup>ff<sup>ff</sup>. ' fhff<sup>°</sup>ffp<sup>°</sup> .r. -ff  
 /pn<sup>y</sup>q [ s-... ' fhff<sup>°</sup>ffx [ r. fh<sup>°</sup>v<sup>n</sup>0  
 p-y<sup>r</sup> pff q o f<sup>ur</sup> Kt .v<sup>ff</sup>ff<sup>ff</sup>ny  
 O ff<sup>°</sup>v<sup>°</sup> Ysspr.../pn<sup>y</sup>q UMN s-...  
 Ur. nyn Mhon<sup>°</sup>t N<sup>v</sup>n<sup>°</sup>0 z nxv<sup>°</sup>t  
 f<sup>ff</sup>r -s p-<sup>°</sup> r<sup>°</sup>ff<sup>°</sup>ny n • ..npur<sup>°</sup>3  
 "nz ry v. :x nff<sup>°</sup>-<sup>°</sup> oy-px ° ffz 3  
 °rr q f<sup>ff</sup>r n<sup>°</sup>q r r4<sup>°</sup>fz nff5

:5 f<sup>v</sup>ryq st f<sup>ff</sup>r. ° -s • nq q 3z nvr n<sup>°</sup>q  
 °- orn<sup>°</sup> r.r.-offv<sup>°</sup>r q f<sup>u</sup>.-ff t u f<sup>ur</sup>  
 M- : 4p<sup>ff</sup>ff<sup>°</sup>t ' f<sup>ff</sup>.r o p-<sup>°</sup>qffp<sup>v</sup>t  
 p. : 4p<sup>ff</sup>ff<sup>°</sup>t r • r. v r<sup>°</sup>ff -<sup>°</sup> • y-ff  
 °vr q 93z 93z 5P-...nq q 3f<sup>ur</sup>  
 v<sup>°</sup>q n<sup>°</sup> z rn<sup>°</sup>ff<sup>iq</sup> v<sup>°</sup> f<sup>ur</sup> s.-z.  
 -s f<sup>ur</sup> un..r<sup>°</sup>ff q f<sup>ff</sup> uff<sup>ix</sup>q • nq q  
 /pn<sup>y</sup>q QUQs-. Qnonu Ur .v<sup>°</sup>t Qw<sup>°</sup>t 0  
 f<sup>ff</sup>v<sup>°</sup>t n p-<sup>°</sup> r. :v<sup>°</sup> .nff -offv<sup>°</sup>r q  
 s.-z f<sup>ur</sup> .r. :ff<sup>ff</sup> -s f<sup>ur</sup> 978C [ nq q  
 ff -v<sup>°</sup>pr M- r. :v<sup>°</sup> -nff<sup>°</sup> ' f<sup>ff</sup>.r 5



- 4 J"txn . .:q x°v °r@.n or.n° ; 5 aur .vpr . .:qffpffr-“ st ffr:°  
 qv r.-yru z rnyv un°y r.r. -offv°rq ffr.-fft u ffr  
 .r.xnyun“ n“@.n . .:q x°v .nqv z ffffr xpnffr-“ -s .nq  
 qr“tn“ n“txn x-“ r.:v PUP . .:qffpffr-“ vfu ffr p-“ r.:v-“  
 xr or.n° un°y ' ..rv U-“ r.:v .nff s.-z QUO ff .-y°urq .vpr  
 Pnonu xr Kr.n° @u “ 867B4 r.r°ffff q s.-z ffr [nqq ff \_Spr  
 M-“ r.:v-“ ' ffr.r v° 978CS
- 4 Mh@ . .:q x°v .nyn v@.z.n° x <5 Nnff -“ °rp-“qn... s--q p.-°  
 vnt “t qn“ xr qryv@.nxuv.qv.vv° /v° pffq v°t z nvr n“q °- orn“°0  
 .nqn @u “ 867; 4' rvmx @u “ r.r. yn°ff .ry n°rq v° 978<5' v° pr  
 867<2K[ ' ° qnu @qnx z r.vv° ynt v 978=3 L[ ' 4 ffffr ffp° S'q-“r°vn  
 qn@ . .:q x°v .nyn v@ xn.r.“n un° “-ff .ry n°rq . .:qffpffr-“  
 z r@-qr .r“t z . yn“ y n° qnff -“ °rp-“qn... s--q p.-°  
 .n“r“ z r@-qr .nyn v@ z n°w n“ z -r. orpnffr ffr un..r°ff q  
 z r“tt “nxn“ z r@-qr ynz n2 n“t n.rn p-yr pffr-“ ffrq ffr -yq  
 qq tn° qnu @qnx nx .n@ “@x z rffu-q3 upu v° n° ffr.r pff q  
 .r“t z . yn“ qn@ y n° .n“r“4 ff or v° nppffn.nff s-... qnff  
 p-yr pffr-“ -s un..r°ff q n.rn5
- <4 Mh@ y n° onx ynun“ °n nu =5 aur rffn“q n.rn ffrq n° ffr on°v  
 n“t qvt “nxn“ °ront nv qn°n... s-..pnypffnffr t ffr un..r°ff q n.rn  
 .r“tuv@“tn“ y n° .n“r“ nqnyu v° ffr ynf°ff Xnffr-“ny drffn“q  
 V n° Knx Vnun“ ' n nu Xn°v-“ny K.rn on°rq -“ ffr Nrp.r r -s  
 @.an... or.qn°n.xn“ Ur. ©“n“ ffr Kt.n.vn“ Kssnv°. n“q ' .nffny  
 Wr“ @.y. Ja\_5Ur .nyn K[ X3\_S X-4 [yn““v°t Wv vff .@Mvrs -s  
 <A<5 U3 P 494695e558686 @“tt ny Xnffr-“ny Vn“q Ktr“p X-5 =B=6  
 7= Mr°rz or...86864 V n° ynun“ ' U4 Q5: 5: 6e559797 Nrprz or...  
 onx °n nu “n°v-“ny@u “ 8686 8A3 97975 aur rffn“q n.rn v°  
 nqnyu °r or°n..=4 <9B: A urx@.4 9797 n° A5 = 5; B urpffr.r°5
- =4 ' ..rv [r.@“vn“ R-.@x y@.n A5 aur Kt.vpfffffrny ' ffr.r s-...  
 .'[ R/ qvry“tt n.nxn“ -yru R-.ffpfffffr. / [RO v° pn..x q -fff  
 Knqn“ [ °n@ ' @v@x orxr.v@ o ffr L[ ' 4 ffffr ffp° S'q-“r°vn v°  
 °nz n qr“tn“ M.vrx@.n@ p--°r.nffr-“ vfu ffr Nvrpff.nff  
 Tr“qr.ny R-.@x y@.n2 Qr“r.ny -s R-.ffpfffffr.3  
 Urz r“@.vn“ [r.@“vn“4 Wv vff.. -s Kt.vpfffffr.5
- A4 U r°v-“r... n“t qvt “nxn“ B5 aur ] ffr°ffr-““nvr. ffrq ff  
 qnyz .r“t z . yn“ p-yr pff ffr Kt.vpfffffrny ' ffr.r

qn<sup>Ⓞ</sup> ' [R z r" pnx • C  
 n4 ' [R3 K' qv "nxn"  
 "©x qn<sup>Ⓞ</sup> Ⓞ"nz n" °n .n"  
 qn" o nu3o nun" °rz °v  
 o4 ' [R3K' a qv "nxn"  
 "©x qn<sup>Ⓞ</sup> Ⓞ"nz n" o nu3  
 o nun" qn" °n .n" Ⓞu "n" 4  
 p4 ' [R3K O qv "nxn" "©x  
 qn<sup>Ⓞ</sup> Ⓞ"nz n" ov-sn.z nxn4  
 q4 ' [R3R qv "nxn"  
 "©x qn<sup>Ⓞ</sup> Ⓞ"nz n" uv°4  
 WrⓄqr n"t qv "nxn" qnyz  
 ° ..rv v v nqnyu z rⓄqr  
 • r"pnpnun" y"txn• Ⓞ.unqn•  
 °ry ..u xrpnz n<sup>Ⓞ</sup> qv S'q-"r°v  
 qn" qv•- .xn" °rpn.n ..Ⓞ  
 o yn"n" "©x ' [R3 K' qn"  
 Ⓞv. yn"n" "©x ' [R3K' a2  
 ' [R3K O ' [R3R -yru ULM4

B4 Mn<sup>Ⓞ</sup> n"t qv z • xn" qnyz  
 ' [R z r" pnx • C qn<sup>Ⓞ</sup> Ⓞ"Ⓞ"t  
 y n° • r"n"nz n"2 y n° • n"r"  
 . "©x o nu3o nun" Ⓞu "n"  
 nqnyu on" nx" n Ⓞ"nz n"  
 n"t z r"t un° vxn" /2 • ..q x°v  
 y n° ..°nx2 y n° Ⓞ"nz n"  
 nxuv.2. qn" un.t.n wny • rⓄ"v4

764 an"nz n" °n .n" qn"  
 o nu3o nun" °rz °v  
 n4 an"nz n" °n .n" °rz °v  
 nqnyu Ⓞ"nz n" n"t or.z n" snnⓄ  
 °ront nv °n .2. °ront nv ° z or...  
 vnz v z v r.ny2qn" yv 3n v n"t  
 or..z ..x .n"t qn.v.°nⓄ Ⓞu "4  
 [nqn z z " n ontvn" n"t  
 qv "nxn" °ront nv°n ..or...• n  
 qn "2 o "t n2 o nu2 qn" z ov4  
 o4 an"nz n" o nu3o nun"

s-... R-.ffpffffir. qnff n.rD  
 n5 '[R4 L' fffrq s-...qnff -"  
 °rn°-"ny rtrffoy n"qs.fuff y n" ff5  
 o5 '[R4 L' a fffrq s-...qnff -"  
 n"°ffnys.fuffn"q rtrffoy • y n" ff5  
 p5 '[R4LP fffrq s-...  
 qnff -" z rqp v ny • y n" ff5  
 q5 '[R4R fffrq s-... qnff  
 -" -..nz r" ffy • y n" ff5  
 aur z rfu-q fffrq v fiv °ffi.r v  
 p-z • y ff r" ffz r.nff- s-.ny-s°ffo  
 qvffvff v S'q-"r°v n"q .t.:-.ff q  
 z -"ffiy s-..:[R4 L' n"q "ffn.ff.y.  
 s-... '[R4 L' a3 '[R4LP3 '[R4R o  
 nt.vpffffir. r ff"°v- -..xr.:5

C5 aur Kt.vpffffir. 'ffi.r s-...  
 R-.ffpffffir. p-yr pff fur  
 v s-.z.nff- -" fur • y n" ff q n.rn3  
 un..r°ff q n.rn / s-..n"°ffnys.fuff  
 v fur "ffz or...-s • ..qffpff-"  
 • y n" ff3 • ..qffpff- 3qnz ntrq n.rn3  
 • y n" ff n.rn v fur r"q -s • r.v-q3  
 n"q • v r -" fur sn.z.4 nff y ry

875 'rn°-"ny rtrffoy n"qs.fuff y n" ff  
 n5 'rn°-"ny rtrffoy • y n" ff n.r.  
 fffrq p-°ffz rq n° rtrffoy°3  
 upu n.r. fur °-ffipr °-s vnz v 3  
 z v r.ny3 rff funff n.r. ntrq y °  
 fun" 8 rn.5. S' tr"r.ny3 • n.ff  
 funffp-°ffz rq n.r. v fur s-.z. -s  
 y n r°3 sy- r.3.s.fuff3 n"q fffor.:5  
 o5 'rn°-"ny s.fuff • y n" ff n.r.  
 • y n" ff funff • ..qffpr s.r:u s.fuff  
 n° n °-ffipr °-s vnz v 3z v r.ny3

°rz °v nqnyu @n nz n" n"t  
 z r"t un°vxn" o nu°rt n.:r ont nv  
 ° z or... vnz v 2 z v r.ny2 qn"  
 yv 3nv n"t or...z ...x .n"t  
 qn.v.°n© @u " qn" or.an@t  
 y"nx4[nqn z z" no nu n"t  
 qun°vxn" qn.n© qv-"° z °v  
 @n . n qv n°nx @.y.ow qnu y 4

rff fuff ntrq y°° fun" 8 rn...  
 n"q °-sff ffff xq5 Qr"r.ny3 ffr  
 s.fuff .-:qffprq pn" or p-"°ffz rq  
 vfu-ffff orvt p--xrq sv:fb

774 an"nz n" o nu3o nun"  
 qn" °n .n" @u "n"  
 n4 an"nz n" o nu3o nun"  
 @u "n" nqnyu @n nz n" n"t  
 z r"t un°vxn" o nu °rt n...  
 °r ont nv° z or... vnz v 2z v r.ny2  
 qn" yv 3nv n"t or...z ..°n©  
 @u " n@ yow qn" or.an@t  
 xr.n°4[nqn z z" no nu n"t  
 qun°vxn" qn.n© qv-"° z °v  
 @n . n qv n°nx @.y.ow qnu y 4  
 o4 an"nz n" °n .n" @u "n"  
 nqnyu @n nz n" n"t or.z n" snn©  
 °r ont nv °n .2.°r ont nv ° z or...  
 vnz v 2 z v r.ny2 qn" yv 3nv  
 n"t or..z ...°n© @u " n@  
 yow4[nqn z z" nont v" n"t  
 qt "nxn" °r ont nv°n ..or... n  
 qn "2 o "t n2 o nu2 qn" z ov4

885 K""ffnys.fuffn"q rtrffoy .yn"ff  
 n5 K""ffny s.fuff .yn"ff n.r.  
 .yn"ff fuff .-:qffpr s.r.°u s.fuff n°  
 °-ffpr ° -s vnz v 3 z v r.ny3 rff  
 fuff n.r. ntrq z -.r. fun" 8 rn...  
 n"q un.q ffff xq5 Qr"r.ny3 ffr  
 s.fuff .-:qffprq pn" or p-"°ffz rq  
 vfu-ffff orvt p--xrq sv:fb  
 o5 K""ffny rtrffoy .yn"ff n.r.  
 .yn"ff ffrqn° rtrffoy °n°-ffpr °  
 -s vnz v 3z v r.ny3rff fuffv ntrq  
 z -.r. fun" 8 rn.5.S' tr"r.ny3 ffr  
 .n.ff fuffp-"°ffz rqn.r.v fur s-.z  
 -syn r°3sy- r.3s.fuff3n"q ffor.°5

784 an"nz n" ov-sn.z.nxn nqnyu  
 @n nz n" n"t or.z n" snn©  
 "©x -on@-on@n 2 x-°z r@x2  
 qn" xr°run@n n"t qv-"° z °v  
 n@ qt "nxn" qn.v. ont v"3  
 ont v" @n nz n" °r.r.@  
 qn "2 on@t2 o nu2 z ov  
 ..v .n"t/ n@ . " nxn.4.

895 Wraqv ny .yn"ff n.r. .yn"ff upu  
 n.r. ffrsfys-..z rqv r3p-°z rffp°3  
 n"q urnyfu5 Sf v p-"°ffz rq s.-z  
 .n.ff -s ffr .yn"fb ffrpu n° yns3  
 sy- r.3. s.fuff fffor.3. n"q .-:-fb

794 V n° .n"r" nqnyu y n°  
 @n nz n" °n .n"2 o nu3o nun"2

8:5 Rn..r°ffq n.r.n v n.r.n upu  
 rtrffoy3 s.fuff z rqv ny n"q

ov-sn.z.nxn2 qn" @n"nz n" un°  
 n"t qvz ovy un°y n5qv n"r"  
 •nqn •r.v:qr •ryn-.n"4

-.:nz r"ffhy.yn"ff-sp.∴ un..r°ffq  
 qffiv.t fūr •r.v:q -s .r:-.fb

7; 4 V n° •n"r" "©x @n"nz n"  
 °n .n"C y n° @n"nz n" n"t  
 qv n"r" °rxnyx °5unov5  
 qv-"txn...qn" y n° @n"nz n"  
 n"t qv n"r" or .xnyxny .yow  
 qn.v. °n© xny5oryz unov4  
 n4 an"nz n" n"t qv n"r"  
 °rxnyx °5 unov5 qv-"txn...  
 nqnyu @n"nz n" n"t °runov  
 •n"r" yn"t° "t qv-"txn.5.  
 qpno @ @.qv.v. qn.v. on n"t  
 z r.nu2 on n"t • @u2 on n"t  
 qn "2 xr"@n"t2 x-y5 x ov2  
 xrz on"t x-y2 •r©n5 °n v2  
 -.@y2-onx2qn" xnpn"t z r.nu4  
 o4 an"nz n" n"t qv n"r"  
 or .xnyxny .yow qn.v.°n© xny5  
 oryz unov nqnyu @n"nz n"  
 n"t •rz n"r"n" n yow  
 qn.v. °n© xny qn" ovn°n n  
 qv-"txn... n•nown •n"r"n"  
 @.nxuv...° qnu @qx z rz nqv  
 ynt v@.qv.v.qn.vCxnpn"t •n"v"t2  
 pnonv or°n.2.pnonv .n v2 v2 .2.  
 @-z n@ @..."t2 o "p2 xr@ "2  
 yno °vz 2 xn"tx "t2 on nz 2  
 z ry-"2°rz n"txn2 qn" oy nu4

8; 5 Rn..r°ffq n.rn-s rtrffoyr°Dn.rn  
 -s r"ffxy un..r°ffq6qrz -yurq  
 •yn"ffn"q •yn"fffnffv un..r°ffq  
 °r r.ny ffz r°ffq qz -yurq5  
 n5 O'ffxy un..r°ffq6qrz -yurq  
 •yn"ff n.r. •yn"ff fffny  
 un..r°ffq -"pr n"q qz -yurq  
 ff or °ffo'fffff q o -fūr...:yn"ff3  
 p-"°vff"t -sD °uny-ff3 t.n.yx3  
 ypu -"v-"3 •-ffff3 pnootr3  
 pnffysy- r.3. puvr°r pnootr3  
 pn...ff3 .nqv3 n"q .rq orn"°5  
 o5 [yn"fffnfn.r.un..r°ffq°r r.ny  
 ffz r°6 fffqz -yurq n.r. •yn"ff  
 fffny un..r°ffq z -.r.fun" -"pr  
 n"q qz -yurq v fūr pn°r funff  
 fūr yn"ffun..r°ff n° rp-"-z pny  
 "-ff •.svffoy5 aur p-"°vff -sD  
 n.yq y-"t orn"°3puyx°z nypuyx3  
 z ffu.∴-z 3 ff-z nff-r°3 rtt•yn"fb  
 t.r" orn"°3 pffpfz or.3.pun -ff3  
 xn"tx-"t 3 °.v npu3 z ry-"3  
 nff.z.ry-"3 n"q pn"ffynffr5

7; 4 [..:q x°v nqnyu un°y z r" ...©  
 or"©x •.:q x qn.v. °r@n.  
 @n"nz n" °n .n"2 o nu3  
 o nun"2 ov-sn.z.nxn2 qn"  
 @n"nz n" un° n"t qvz ovy  
 or.qn°n.xn" y n° n"t qv n"r"5  
 @n"nz n" n"t z r"t un°vxn"  
 •nqn o yn"5v. yn" yn-.n"4

8<5 [..:qffpfv-" v fūr °ff"qn.q.  
 •.:qffpfv-" "ffn"fff s-z. -s  
 rtrffoyr3 s.fffB z rqpvr ny  
 n"q -.:nz r"ffhy •yn"ff on°rq  
 -" un..r°ffq n.r.n6 fūr  
 "ffz or... -s •.:qffpfv-" •yn"ff  
 .r:-.ffq z -"ffuy 6 "ffn.ff.y5

7<4 Mh@ • r.xr o "n" .nx n@  
 qv r .yru qn.v. Mv n° [r.@ "vn"  
 Uno • n@ " an• n" yw ar"t nu4

7=4 Kr"©x • .:q x°v • r.xr o "n"  
 nqnyuC xn.r© xr.v.t .xn.r.©2  
 qn " xr.v.t .@u qn" @z onxn /2  
 oww xr.v.t .x-°v qn" p-xyn©2  
 x y© xr.v.t .xn z n"v qn"  
 xv n/2°r.n©xr.v.t .:nz v2o "tn  
 xr.v.t .pr"txru/2 .rsv/rq °fft n...  
 .@o qn.v. • r.xr o "n" or°n./2  
 t yn z n"tx-x .@o qn.v.  
 • r.xr o "n" .nx n©2 rxv ny"  
 x-° .n .x-° .n/2 oww qn" o "tn  
 . nyn/°r.@ z v° nx qn " .°r.r.u/4

7A4 Mh@ • .: yn°v @°.nx qn"  
 wz ynu • rz -@ "tn" @°.nx  
 or.°. z or... Mv n° [r.@ "vn"  
 Uno • n@ " an• n" yw ar"t nu4

7B4 Mh@ °@°@x • r.wxn" n"  
 z r...• nxn" qn@ °rx "qr... n"t  
 or.°. z or...Mv n° Ury n @ " qn"  
 [r.wxn" n" Uno • n@ " an• n" yw  
 ar"t nu4 ' @°@x • r.wxn" n"  
 qor qnxn" n@° qn@ [r.wxn" n"  
 an"txn• qn" [r.wxn" n"  
 K qvqn n4 [r.wxn" n" an"txn•  
 qvxn°vxn°vxn" n@° • r" n"txn• n"  
 vxn" qv yn © qn" • r" n"txn• n"  
 vxn" qv• r.nv.n" z z 4[r.wxn" n"  
 K qvqn n qvxn°vxn°vxn" n@°  
 w"v o qvqn n n© o qvqn n  
 yn © @z onx2 x-ynz 2 xn.nz on2  
 w.v.t n• "t2 qn" °n nu4

8=5 Nnfh °z nyu-yqr...• yn" ffffr- " n.r.  
 p-yppffq o Kt.vpfffffr. Ysspr  
 -s an• n" ffyv ar"t nu \_rtr"p 5

8A5 [.:qfffr- -s r°fffr° p.°.°n.r.  
 s-y- °Dq... fffoor.../ffoor.©E q...  
 yn r° /ffn n"q ffonpp-©E q...  
 orn"° /p-ssrr n"q p-p-n©E q...  
 on.x. /pn°vn r.n n"q pv pu-"n©E  
 q... sv.o.r. /.:°ryy©E q... sy- r.°6  
 offq° /py- r°E.rsv/rq °fft n...°fft n...  
 pn"r s.-z r°fffr ©E pffr °fft n...  
 /°fft n...pn"r s.-z °z nyu-yqr.°E  
 p-° .n /p-° .n©E °rrq° n"q offq°  
 /" ffr rt ©E n"q yns -w/pvff-."ryy©5

8B5 Nnfh -s q-z r°ffp yr°ff-px  
 • -° ffynfr-3 n"q "ffz or...  
 -s n"v ny° ynff uff.rq n.r.  
 on°rq -" Kt.vpfffffr. Ysspr  
 -s an• n" ffyv ar"t nu \_rtr"p 5

8C5 Pvur... ' ffffr°ffp° n.r. °rp-"qn...  
 qnfh -offv/rq s.-z Wn.v.r Kssnv.°.°  
 n"q Pvur.v.° Ysspr -s an• n" ffyv  
 ar"t nu \_rtr"p Pvur... °fffr°ffp°  
 n.r. pnff t-.v.rq v° ff pn• ffrir.  
 svur.v.° n"q n" ffnfffffr.5Mh• ffrir.  
 svur.v.° n.r. sffir. .py°°svr q v° ff-  
 z n.v.r pn• ffrir.svur.v.° n"q v° yn"q  
 -°r" nff... pn• ffrir. svur.v.°5  
 K" ffnfffffr. n.r. sffir. .py°°svr q  
 v° ff-°r r.nvff• r°-spfffffr. D z n.v.r  
 pfffffr.3o.npxvu nff...-°q3s.r.°u  
 nff...-°q3 pnt r3 sy-nff"t "rfB  
 n"q svu o.r.rqv°t v° • nqq svr q°5

864 \_ z nu an"ttt [r.ɤn"n"  
 an"txn• nqnyu ..z nu  
 @"ttt n"t z rɤx xn"  
 xrtv@ "•r"n"txn•n" ɤn"5  
 ov n@ "t nv.. ɤn" n5@ "nz n"  
 nv.. qr"tn" © wn" °ront vn"5  
 °ry...u un°y' n "©x qwny4

874 \_ z nu an"ttt [r.ɤn"n"  
 K qqn n nqnyu ..z nu @"ttt  
 n"t z rɤx xn" xrtv@ "  
 o qqn n ɤn"5ov n@ "t nv..  
 ɤn" n5@ "nz n" nv.. qr"tn"  
 © wn" °ront vn"5°ry...u un°y' n  
 "©x qwny4

975 K pn•ffir. svur... u-ffru-yq  
 v' n u-ffru-yq p-"qffpff't  
 npffv vfr° v' pnfpuv't svur°6  
 -fur... n"ffnffp n"v ny'6n"ffnffp  
 •ɤn"ff3 s-... upu ffur •..qffpff  
 n.r. u-y -...•n.fy ff or °-yq5

985 K" n"ffnffpffir. svur... u-ffru-yq  
 v' n u-ffru-yq p-"qffpff't npffv vfr°  
 v' pffpffv.t svur°6-fur...n"ffnffp  
 n"v ny'6n"ffnffp •ɤn"ff3 s-... upu  
 ffur •..qffpff n.r. u-y -...•n.fy ff  
 or °-yq5

<https://tapanulitengahkab.bps.go.id>



<https://tapanulitengahkab.bps.go.id>

$\frac{Y}{U} - EA$  i m S d d m  
m 1 2B9BA  
b - y w z i w R w - f w j w w j - w  
h - - y 0 - w z 1A8A9

<https://tapanuliteng.kab.bps.go.id>

d fl tw G d ≤ tv D M s aw s ≤ s ≤ T s t s w s s ≤ f r e w s y s z 6 K x z f f i v Z tv s w r r f l f z e v f l x r y c v x v f l t





<https://tapanulitengahkab.bps.go.id>

**E7A** a h kntōn em kR  
We hj Xrk bj k hT

m \_\_\_\_\_ E7A7A e i m l f d  
j wx - c m d m m 1 5B9B9  
B9BA

Ww - -z P -w l - - wx - x i xz y w z a z  
f w j w w j- w h- - y 0 w14A8A8 w z A8A9

a..zx x x o fl	0x x o fi	Pxyx 0..x V W	Pxyx hx Wf l	axzx fx x h V fi
	9797 9798	9797 9798	9797 9798	9797 9798
/80	/90	/:0	/:0	/>0
a↔s	89	4	4	=
Ksv—	87	4	4	;
d↔sts	4	8	4	8
U fl	4	4	4	4
d ↔sts	4	>	:	4
as↔s	9	:	4	8
e ↔s	4	4	4	8
ds v↔	:	4	4	4
es ↔s	4	4	4	8
d-sz -	4	9	8	4
T f↔s	>	:	:	:
d ↔fl	A	8B	8:	9
d ↔fl Ks s	4	=	4	4
as s ↔ e t	>	B	>	9
Ks	4	4	4	4
d Psv	:	>	B	8
J ↔sfl Mw -	4	4	4	4
Ks f s s	4	4	4	4
V s↔ sfl s	4	4	4	4
d-s↔	4	8	4	4
j x x j... x	B9	BE	:C	99

Vn" w@n" anor y5M-" ff' ff q anoy ; 44

a. x x x o fl	a x s fi o fi		a... W fl		j... a fi	
	9797	9798	9797	9798	9797	9798
/80	/870	/880	/890	/8: 0	/8; 0	/8<0
a-sy -	88		9		:	
Ksv—	87		:		<	
d+sts≤	4		4		8	
U fl	4		4		4	
d sts≤	4		4		4	
as≤s≤	:		9		:	
e ±s	4		4		8	
ds v±	9		9		9	
es -s≤Vb fi-	4		4		8	
d-sz -	4		4		4	
T fsy	=		9		<	
d sfl	=		8		9	
d sfl Ks s	4		4		4	
as s ± e t y	:		:		:	
Ks	4		4		4	
d Psv y	:		4		:	
J sfl Mw -	4		4		4	
Ks f s s	4		4		4	
V s sfl s	4		4		4	
d-sy y	4		4		4	
<b>j x x j... x</b>	<b>AA</b>		<b>8B</b>		<b>:7</b>	

Ls s s s y C J sy s dvl v s s s / J dNv 06a v f i z l r P x v  
 d fl t w 6 s t v D Kad 3 d s - ± aw s s s Q ± fi s da Q 6 L ad 3 d r z z s fl u s l v x 2 K x z f f i r f i l r z z v s R s z f f i v da R

**m**  
**jwx - E7AB**

**i m l f d c**  
**m d m m 1 2B9B9**  
**B9BA**  
**f z y l - - wx - x i xz y w z a z f w**  
**jw w j- w h- - y 0 1A8A8 w z A8A9**

a.zx x x o fl	0x x o fi		Pxyx 0..x V W		Pxyx hx Wf l		axzx	fx x
	9797	9798	9797	9798	9797	9798	9797	9798
/80	/90	/: 0	/; 0	/< 0	/= 0	/> 0	/A0	/B0
a<=>y -	8>		4		4		>>	
Ksv—	8: 8		4		4		: B9	
d<sts>y ≤	4		9: A		4		<A	
U fl	4		4		4		4	
d <sts>y ≤	4		=;		9: >		4	
as<ys>≤	97		=8		4		=	
e ±±	4		4		4		<	
ds v±	9A		4		4		4	
es <≤Wb fi	4		4		4		<=	
d-sz -	4		:::		8: A		4	
T fi<y	>		: A;		8>8		8B:	
d <sf	>>		9 <7>		89;7		88>	
d <sf Ks s	4		>8=		4		4	
as s t e t <y	=8		898<		88: >		888	
Ks	4		4		4		4	
d Psv <y	9=		879:		>7<		<	
J <sf l Mw -	4		4		4		4	
Ks f s s	4		4		4		4	
V s < sf l s	4		4		4		4	
d-s < <y	4		97>		4		4	
<b>jx x j... x</b>	<b>BF7</b>		<b>DEFE</b>		<b>: C9E</b>		<b>8 E: B</b>	

Vn" w@n" anor y5M- " ff' ff q anoy ; 4B

a.zx x x o fl	ax s fi o fi		a... W fl		j... a fi	
	9797	9798	9797	9798	9797	9798
/80	/870	/880	/890	/8: 0	/8: 0	/8<0
a-sy -	8<		=		8B<	
Ksv—	89<		BB		8A:	
d-tsts y ≤	4		4		:B	
U fl	4		4		4	
d tsts y ≤	4		4		4	
as y s ≤	::		; <		B9	
e ±±	4		4		:>	
ds v ±	99		←		>B	
es -s≤Vb fi	4		4		::	
d-sz -	4		4		4	
T fi y	=7		::		977	
d ±fl	<A		9;		A:	
d ±fl Ks s	4		4		4	
as s t e t y	9>		<		8: ;	
Ks	4		4		4	
d Psv y	9:		4		=	
J y sfl Mw -	4		4		4	
Ks f s s	4		4		4	
V s y sfl s	4		4		4	
d-s y y	4		4		4	
<b>jx x j... x</b>	<b>B78</b>		<b>:EB</b>		<b>88:E</b>	

Ls s s s y v C J y s d v l v s s s / j d n w 0 6 a v f f i z l r P x v  
 d fl t w 6 s t v D Kad 3 d s - ± a w s s s ≤ Q ± fi s da Q 6 L ad 3 d r z z z s l u s l v z 2 K x z f f i r f i l r z z z v s R ≤ z f f i v da R

$\frac{m}{jwx} - EAZ$

e i m l S S I  
 f c m d m m 5  
 B9AI 6B9BA  
 Ww - -z P -w i-w w l - - wx - w z U x a z  
 f w jw w j- w h- - y 4A89H5A8A9

Y... jx x x g l fi	ix x q	978F	9797	9798
/80	/90	/:0	/:0	/:0
Ks s y Ms s d r r f f f f	z s 6 y r	4	4	
Ks s y V w s z 6 d y r f f f	z s 6 y r	4	4	
Ks s y a z 6 Q r f f	z s 6 y r	4	4	
Ks s f l 6 d z l r t y	z s 6 y r	; A	< 9	
K f w s z 6 l f f r y	z s 6 y r	4	4	
K s l - 6 d z l x L v r f l	z s 6 y r	4	4	
L s t s - K w s 6 L z M y z f i	z s 6 y r	; A	< A	
L s t s - c s - 6 M v f f l v a v v	z s 6 y r	9 =	: =	
S s f l 6 W y s f i	f l % 6 f i 8	4	4	
T s u s y a s s s y 6 v s l x L v r f l	z s 6 y r	::	99	
T s y ± s y 6 h r v d z l r t y	z s 6 y r	::	::	
T w l t s y T f 6 M f f i ≤ v	z s 6 y r	4	4	
T w s s y 6 a s r ≤	z s 6 y r	4	4	
T w f l 6 M t f i s v	z s 6 y r	8:	8<	
T t - 6 M s s r x v	z s 6 y r	4	4	
U b t d s f l 6 M y r ≤ v	z s 6 y r	4	4	
V w f i s W v f f f l	z s 6 y r	4	4	
a w s 6 d s - 6 M y z l v v M s s r x v S W r u x v v f l	z s 6 y r	4	4	
d w l s s y ± s 6 h r v f i v f f f l	z s 6 y r	4	4	
e w s y 6 Q x f f f l	z s 6 y r	9B	: 7	
e f l s 6 e s f i r ≤	z s 6 y r	4	4	
h v f 6 M ≤	z s 6 z s	4	4	

Ls s s s y ≤ v C J s y ± s d w l w s s s J d n w 0 6 a v f f i z l r P x v  
 d f l t w 6 d s t v D Kad 3 d s - ± a w s s ≤ s Q ± f i s d a Q 6 L a d 3 l r z z s l u s l v x 2 K x z f f i r f f l r z z w s R ≤ z f f i v d a R

$\frac{m}{jwx} - EAD$

i m l S S l  
 f c m d m m 5  
 B9AI 6B9BA  
 f z y i-w w l - - wx - w z U x a z  
 f w jw w j- w h- - y 4A89H5A8A9

Y... jx x x g l fi	ix x q	978F	9797	9798
/80	/90	/:0	/:0	/:0
Ks s y Ms s d r r f f f l	± 6 z	4	4	
Ks s y V w s z G d y r f f f l	± 6 z	4	4	
Ks s y a z G r f f i	± 6 z	4	4	
Ks s f l G d z l r t y	± 6 z	<B8	<B7	
K f w s z G l f f i r y	± 6 z	4	4	
K s l - G d z l x L v r f l	± 6 z	4	4	
L s t s - K w s G L z M y z f i	± 6 z	<B7B	>ABA	
L s t s - c s - G M v f f i v a v v	± 6 z	: AA9	: :9A	
S s f l G W y s f i	± 6 z	4	4	
T s u s y a s s s y G v s l x L v r f l	± 6 z	98: =	8 A: <	
T s y ± s y G h r v d z l r t y	± 6 z	; A=	<78	
T w l t s y T f f i M f f i ≤ v	± 6 z	4	4	
T w s s y G a s r ≤	± 6 z	4	4	
T w f l s G M t f i s v	± 6 z	; :9	: A<	
T t - G M s s r x v	± 6 z	4	4	
U b t d s f l G M y r ≤ v	± 6 z	4	4	
V w f i s W v f f l	± 6 z	4	4	
a w s G d s - G M y z l v v M s s r x v S W r u x v v f l	± 6 z	4	4	
d w l s s y ± s G h r v f i v f f l	± 6 z	4	4	
e w s y G O x f f i l	± 6 z	8: 7A	88: A	
e f l s G e s f i r ≤	± 6 z	4	4	
h v f f i M ≤	± 6 z	4	4	

L s s s s y ≤ v C J s y ± d w l w s s s J d n w G a v f f i z l r P x v  
 d f l t w G d s t v D Kad3d s - ± a w s s ≤ s Q ± f i s d a Q 6 L a d 3 l r z z s l u s l v x 2 K x z f f i r f f i r z z w s R ≤ z f f i v d a R

**m**  
**jwx - E7AE**

**e i m S f d**  
**c m d m m 5B9B9**  
**B9BA**

**Ww - -z P -w c -z y wf w x i xz y w z a z**  
**f w jw w j- w h- - y 4A8A8 w z A8A9**

a.zx x x o fl	Yx ... c / '0	bx b... x c f f i f i / '0	c ... - f x z... e f i f l / 6 0
	9797	9798	9797 9798
/80	/90	/:0	/:0 /<0 />0
a<=y -	4		4
Ksv—	4		4
d+sts y ≤	4		4
U fl	4		4
d +sts y ≤	4		4
as≤vs≤	4		4
e ±±	4		4
ds v±	4		4
es -s≤Vb fi	4		4
d-sz -	4		4
T f s y	4		4
d ±fl	4		4
d ±fl Ks s	4		4
as s t e t y	4		4
Ks	4		4
d Psv y	4		4
J s y fl Mw -	4		4
Ks f s s	4		4
V s y s fl s	4		4
d-s y y	4		4
<b>j x x j... x</b>	<b>4</b>		<b>4</b>

Ls s s s y v C J s y ±± d w fl w s s s / J d N 0 6 a v f f i z f r P x v  
d fl t w d ≤ tv D Kad 3 d s - ±± a w s s ≤ Q ± f i s da Q 6 L a d 3 d r r z z s l u s l v a 2 K x z f f i r f i l r z z v s R ≤ z f f i v d a R



m  
jwx - E7AF

i m S f d  
c m d m m 5B9B9  
B9BA  
f z y c -z y w f w x i xz y w z a z  
f w jw w j- w h- - y 4A8A8 w z A8A9

a.zx x x o fl	Yx ... c /a 6g 0	bx 6... x c f f i f i /a 6g 0	c ... - 6xz... e f i f l /a 6g 0			
	9797	9798	9797	9798	9797	9798
/80	/90	/: 0	/: 0	/< 0	/= 0	/> 0
a<=y -	4		4		4	
Ksv—	4		4		4	
d+sts y ≤	4		4		4	
U fl	4		4		4	
d +sts y ≤	4		4		4	
as≤vs≤	4		4		4	
e ±±	4		4		4	
ds v±	4		4		4	
es -s≤V6 fi-	4		4		4	
d-sz -	4		4		4	
T fi y	4		4		4	
d ±fl	4		4		4	
d ±fl Ks s	4		4		4	
as s t e t y	4		4		4	
Ks	4		4		4	
d Psv y	4		4		4	
J y s fl Mw -	4		4		4	
Ks f s s	4		4		4	
V s y s fl s	4		4		4	
d-s y y	4		4		4	
j x x j... x	4		4		4	

Ls s s s y v C J y ±± d w fl w s s s / J d N 0 6 a v f i i z i r P x v  
d fl t w 6 d s t v D Kad 3 d s - ± a w s s s ≤ Q ± f i s d a Q 6 L a d 3 d r r z z S l u s l v z 2 K x z f f i r f i l r z z v s R ≤ z f f i v d a R

$\frac{m}{jwx} - E7AZG$

e i m S f c m  
 d m m 5B9AI 6B9BA  
 Ww - -z P -w c -z y wf w x a z f w  
 jw w j- w h- - y 4A89H5A8A9

Y... jx x x g l fi	ix x q	978F	9797	9798
/80	/90	/: 0	/: 0	/<0
Mfi sy 6M sy 6M fffi	fl %6fi <sup>8</sup>	4	4	
Sszv6Qzflxv	fl %6fi <sup>8</sup>	87; >	4	
Ts fisy6lr r M urfi sfi	fl %6fi <sup>8</sup>	4	4	
Tw-Kwfi sy 6gv svflrtvr v	fl %6fi <sup>8</sup>	4	4	
Twsu 6Qr fluz fl Qr ffflrx r ffi	fl %6fi <sup>8</sup>	4	4	
T ≤ -6 fi v z	fl %6fi <sup>8</sup>	4	4	
Us 6Uwsy ± s 6Qr ffflrx r ffi	fl %6fi <sup>8</sup>	9 ⇒	4	
Uwfl s sy 6kzflxz v K sfi r z fi	fl %6fi <sup>8</sup>	4	4	
Uvz z K s s 6K ffv v r	fl %6fi <sup>8</sup>	4	4	
V sz ± s Mw s 6ayr ffi z Wrt s tr r	z ≤ v v	4	4	
V wesy ± v 6asw 6 fluz fl W ffv	z ≤ v v	8; 7	4	
ds fl t fi 6Uzflx s v L z v	fl %6fi <sup>8</sup>	4	4	
ewfl -wesy 6l ffflffe fi v z	fl %6fi <sup>8</sup>	4	4	
ewfl ± s v 6ly z fl v v Uv	fl %6fi <sup>8</sup>	4	4	
ewfl fs s 6lr r e fi v z	fl %6fi <sup>8</sup>	4	4	

Ls s s s SY ≤ vC J sy ± s dwfl w s s s / J dW 06a v fffl zlr Pzx v  
 d fl t w 6d s tvD Kad3d s - ±aw s ≤ s ≤ Q ± fi s da Q6Lad3d r z z fluz s flv z z Kx z ffi r ffl r z z v s R ≤ z ffi v da R

m  
jwx - E7AH

i m S f c m  
d m m 5B9AI 6B9BA  
f z y c -z y w f w x a z f w j w w  
j- w h- - y 4A89H5A8A9

Y... jx x x g l fi	ix x q	978F	9797	9798
/80	/90	/: 0	/: 0	/<0
Mfi sy 6M sy 6M fffi	≠6 ffx	4	4	
Ssz w6Qzfxv	≠6 ffx	87; >	4	
Ts fisy 6Tr r M ur fi sfi	≠6 ffx	4	4	
Tw-Kwfi sy 6gv svfl rtrv	≠6 ffx	4	4	
Twsu 6Qr fluz fl Qr fffl x r ffi	≠6 ffx	4	4	
T ≤ -6 fi v z	≠6 ffx	4	4	
Us 6Uw sy ± s 6Qr fffl x r ffi	≠6 ffx	9=	4	
Uwfl s sy 6kzfxz v K sfi r z fi	≠6 ffx	4	4	
Uvz K s s 6K f f v r	≠6 ffx	4	4	
V sz ± s Mw s 6ay r ffi r Wrt s tr r	≠6 ≠	4	4	
V w sy ± v 6as w 6 fluz fl W f fiv	≠6 ffx	8; 7	4	
ds fl t fi 6Lzfx s Lz v	≠6 ffx	4	4	
ewfl -w sy 6L f f f i f f e fi v z	≠6 ffx	4	4	
ewfl ± s u 6M y z f v v Uv	≠6 ffx	4	4	
ewfl fs s 6Tr r e fi v z	≠6 ffx	4	4	

Ls s s s Y ≤ v C J sy ± dwfl w s s / J dW 06a v f f i z l r Pz v  
d fl t w 6 ≤ tvD Kad 3d s - ± aw s ≤ s ≤ Q ± fi s da Q 6 L ad 3d r z z fluz s l v r z K x z f f i r f i l r z z v s R ≤ z f f i v da R

**m**  
**jwx - E7A7**

**i S 6 f c m**  
**d d m m 1 ZB9B9**  
**B9BA**  
**f z y U x a z f w w z i xz y**  
**jw w j- w h- - y 0 H48A8 w z A8A9**

a.zx xx ofl	N x U fi	O... y ofib	R 6x x 6a x Y
	9797	9798	
	/80	/90	/:0
a<=y -	4	4	8A
Ksv—	4	4	>
d+sts y ≤	A	4	:<
U fl	4	4	=
d +sts y ≤	4	4	4
as<vs≤	B	9	8<
e ±±	>	9	=7
ds v±	4	4	4
es -s≤V6 fi-	88	4	;97
d-sz -	4	4	;77
T fi y	8<	9	9;7
d ±fl	8;	:	8=7
d ±fl Ks s	:	:	8;
as s t e t y	4	4	:B
Ks	4	4	4
d Psv y	=	4	4
J ±sfl Mw -	4	8	=7
Ks f s s	:	4	4
V s y sfl s	A	4	8A
d-s y y	A	4	8=
<b>jx x j... x</b>	<b>F9</b>	<b>8:</b>	<b>97EE</b>

Vn" w@n" anor y5M- " ff' ffr q anoy ; 4B

a. zx x x o fl	R x Y fi		Yx y N n U		Yx y O c fi fi	
	9797	9798	9797	9798	9797	9798
/80	/A0	/B0	/870	/880	/890	/8: 0
a<=y -	A>97		9		8	
Ksv—	<: =7		8		9	
d+sts y ≤	8: A>7		9		8	
U fl	; 8<=		4		4	
d +sts y ≤	9; 8		4		4	
as≤vs≤	8 =77		;		8	
e ±±	8<; B8		8		9	
ds v±	4		9		9	
es -s≤Vb fi	><=		8		8	
d-sz -	8>997		4		4	
T fb y	87 9; 7		8		8	
d ±fl	89 9<		9		9	
d ±fl Ks s	=; <7		9		8	
as s t e t y	<9<		:		9	
Ks	8 797		4		8	
d Psv y	<79<		9		8	
J ±sfl Mw -	=>7		8		8	
Ks f s s	>>		4		4	
V s y sfl s	9 >8<		4		4	
d-s y y	; 9B7		4		8	
<b>jx x j... x</b>	<b>89: BF7</b>		<b>9A</b>		<b>97</b>	



Vn" w@n" anor y5M- " ff' ffr q anoy ; 4B

a.zx x x o fl	Y... 0..x l		Y... i x 6a... k fi qfi		c x x i fi	
	9797	9798	9797	9798	9797	9798
/80	/8; 0	/8<0	/8=0	/8>0	/8A0	/8B0
a<=y -	4		; 7		9=	
Ksv—	4		8<		977	
d+sts y ≤	4		4		9A7	
U fl	4		4		8A	
d >sts y ≤	4		4		4	
as y s ≤	4		4		9; 7	
e ± s	4		9<		977	
ds v ±	4		4		9;	
es -s≤Wb fi-	4		4		8=7	
d-sz -	4		4		<7	
T fi y	4		4		8 89<	
d >fl	>		4		: <7	
d >fl Ks s	4		4		: <	
as s † e t y	4		4		87<	
Ks	4		4		97A	
d Psv y	<		4		9=	
J >vfl Mw -	<7		4		9A7	
Ks f s s	4		4		4	
V s y s fl s	4		4		87<	
d->y y	<		4		8<7	
<b>j x x j... x</b>	<b>CD</b>		<b>E7</b>		<b>A: FC</b>	

Vn" w@n" anor ySM- " ff' ffr q anoy ; 4B

a.zx x x o fl	c x i fi		dx x@... .-x ffi		d...x l fi	
	9797	9798	9797	9798	9797	9798
/80	/970	/980	/990	/9: 0	/9: 0	/9<0
a≤s y -	: 7		9A		4	
Ksv—	8 7		98		4	
d+sts y ≤	: 8 7		: <		4	
U fl	4		87		4	
d sts y ≤	4		4		4	
as vs ≤	: 7		89		4	
e ±s	: 97		7		4	
ds v ±	4		4		4	
es -s≤Vb fi	: 9<		=		4	
d-sz -	7		=		4	
T fs y	9; 7		<		4	
d ±fl	9B=		=A		4	
d ±fl Ks s	: 97		<		4	
as s t e t y	4		: <		4	
Ks	4		89		4	
d Psv y	9<		: A		4	
J ±sfl Mw -	7		7		4	
Ks f s s	4		4		4	
V s y sfl s	4		>		4	
d-s y y	: A		A		4	
<b>jx x j... x</b>	<b>BA7A</b>		<b>BD7</b>		<b>4</b>	



Vn" w@n" anor y5M- " ff' ffr q anoy ; 4B

a..x x x o fl	f...x x l fi fi fi		p	f..x W V fi		f x Vfi fi fi	
	9797	9798		9797	9798	9797	9798
/80	/9=0	/9>0	/9A0	/9B0	/: 70	/: 80	
a<=y -	:7		8<7		8:9		
Ksv—	9:		88:		998		
d+sts y ≤	;8		:>7		; 977		
U fl	>		89>		=7		
d >sts y ≤	4		:7		9A		
as<vs≤	97		89		89		
e ±±	9:		:97		87;		
ds v±	8A		4		4		
es -s≤Vb fi-	9<		87:		=7		
d-sz -	8:		8=77		: A		
T fb y	<B		8>>A		; B8		
d ±fl	: A		8<7		8=7		
d ±fl Ks s	9=		98=		: =		
as s t e t y	::		<7		8>B		
Ks	>		;7		<7		
d Psv y	: A		9<		87A		
J >sfll Mw -	8A		:>7		><		
Ks f s s	>		97		4		
V s y sfl s	A		;77		<		
d-s y y	=		9=>		AA		
<b>j x x j... x</b>	<b>AB8</b>		<b>C 898</b>		<b>D7EA</b>		



Vn" w@n" anor ySM- " ff' ffr q anoy ; 4B

a. zx x x o fl	hx y x nfi fl fi	ix x o fi	ix 6ix - x ofi	i x o
	9797 9798	9797 9798	9797 9798	9797 9798
/80	/:90	/::0	/::0	/::0
a<=y -	879	4	8	8
Ksv—	8A9	4	9	8
d+sts y ≤	B=7	4	9	8
U fl	;9	4	4	8
d <sts y ≤	4	4	4	4
as <vs ≤	: =	4	;	4
e ±b	:77	:7	:	8
ds v±	<7	4	4	4
es -s≤Vb fi	=7	4	4	8
d-sz -	4	:77	4	4
T fb y	;97	4	:	8
d <fl	9;7	4	9	8
d <fl Ks s	=77	4	9	8
as s t e t y	888	4	;	4
Ks	89	4	9	4
d Psv y	4	4	4	8
J <sfli Mw -	9<7	4	4	4
Ks f s s	4	4	4	4
V s <v sfl s	887	4	:	4
d-s <y y	8=7	4	4	4
<b>j x x j... x</b>	<b>: C: F</b>	<b>::7</b>	<b>9E</b>	<b>87</b>

Ls s s <v C J <v <v fl w s s /J dN 0ca vifi fi fir x v  
d fl t w <v tvD Kad3d s - ±aw s <v <v ± fi s daQ6Lad3d r z z s lu <lv z 2Kx z fi r fl r z z v s R < z fi v daR

$\frac{m}{jwx} - E7A9$       i      S      S      l      m      f  
 c      m      d      m      m      5B9AI 6B9BA  
 f      z      y      P      w      U      w      z      l      -      -      wx      -      x      a      z      f      w  
 jw w      j-      w      h-      -      y      4A89H5A8A9

Y... jx x x g l fi	ix x q	978F	9797	9798
/80	/90	/:0	/:0	/<0
J fi ± 6K ≤tru≤	± 6 z	87=	B9	
J ≤yy 5Q r v	± 6 z	4	4	
J wf6K ffi	± 6 z	4	4	
KwfiA t ≤y6dr P z	± 6 z	8:	8:	
M ± 6Ls ≤y s 6T ± s ≤6N ff	± 6 z	; ; >>	97AA	
M s ≤6N x fl	± 6 z	88A BB8	89: <B7	
Ss fl t J-6c wk ffi	± 6 z	<B	9;	
Ss fl t K-6Q r r	± 6 z	>B	97	
Swsy ± f6 Tr fl x ff ≤ ffi	± 6 z	4	4	
Sw ± Kws 6a ≤ fi v ff	± 6 z	; >	⇒	
Sw ± d s fl 6T w ± 6Z r fl xv 5 er fl xv z lv	± 6 z	8: <	A7	
V s ≤y s 6 Wr fl x ≤	± 6 z	; <88	; : B=	
V s ≤y -6 Wr fl x ≤ v fl	± 6 z	<: 7A	<: 7;	
V s ± s 6T ≤ s f6 ar z fl w z	± 6 z	4	4	
V w fi ≤ .6P ≤ w fl 6W v fi ≤	± 6 z	4	4	
V6 ≤y ± 6L v fi w s ± 6 Tr t f lv z	± 6 z	B <	< 7	
Wws 6a z lv r ffi	± 6 z	8:	4	
aws s 6 ar r r	± 6 z	8: B9	; <8	
aws-6e z vu ffi v Lv r fl	± 6 z	=-7=	=898	
a-s ≤y 6L r fl r fl r	± 6 z	=< <	>7A;	
cs fl t s ≤ cr fi s r fl	± 6 z	: ; ;	: = B	
ds fs ± 6 d fl r f lv w z	± 6 z	: A >	: : 7	
ds 6 ds v ff 6 dr ≤	± 6 z	; 7	9A	
d- s ± 6 d ≤ ≤	± 6 z	B	87	
d ± ≤ 6L vr uw z	± 6 z	4	4	

Ls s s ≤ 6Y ≤ v C J ≤y ± 6 d vl w s s / J dN 06a v fi fi z fl x v  
 d fl t w 6 d ≤ tv D Kad 3 d s - ± aw s ≤ s ≤ Q ± fi s da Q 6 L ad 3 d r z z fl u ≤ lv z 2 K x z ffi r ffi r z z v ≤ R ≤ z ffi v da R

E7B

i VkdVSngRg  
Ti j Pj T R he fi

$\frac{m}{j w k} -$

E7B7A

e R m i f d  
c m d m m 1 5B9B9

B9BA

f w -z P -w T w-R x i xz y w z j -  
R j w w j- w h- - y 0 w14A8A8 w z A8A9

a..x x x o fl	a..x x i x k l fi		a..x x W		ax ... n flfl	
	9797	9798	9797	9798	9797	9798
/80	/90	/:0	/:0	/:0	/:0	/:0
a<=y -	9; =	: > 3;	8; ;	738	8 99;	8 < 738
Ksv—	9A>	: B993A	: 87	8>B=	: 9A:	>883 <
d+sts y ≤	8B9	> 8B>	9; A	4	: BB8	> 37
U fl	9: >	A>837	87;	93<	8 8: 8	9 < 93A9
d +sts y ≤	9A=	: < 837	98A	8>B3A9	: B;	; 73;
as ≤ vs ≤	: 9	A38	8 <	4	< 89	9 < A3 <
e ±±	88>	9937=	8>9	4	: B>A	9 > 8 < 7
ds v ±	: 7	4	8: A	4	< 7	= 739
es -s ≤ W6 fi	8; ;	> 83B	9A=	=B3 7	97A>	97=3 <
d-sz -	9;	; 39	A=	4	87A7	8:: 93 8
T fi y	: B<	; ; 7839	=:	83A:	8; ; =	; AA; 3 <
d ±fl	; BA	9: 9>3;	<< 8	> 83A>	8; 8>	9:: B3A
d ±fl Ks s	87B	8 => 3<=	: =7	B83AB	>> A	: 8; 3 <
as s t e t y	8; 9	88 < 99	9B8	; 837:	AB;	< 3 9
Ks	87<	: 73:	9 <	8A737	: =A	< 3 8
d Psv y	8: 9	8 A8 < 3:	; >	8A93 B	8 > AA	< ; 3 =
J ±sfl Mw -	8B7	B < 3 8	; 8A	8A=37	8: >	< > 3 <=
Ks f s s	8: 8	> 739	97B	: 83B	<:	8; 93;
V s y sfl s	9; ;	88 9 => 3 8	: 89	8 > 3 <	B <	8 < 7 3 7
d-s y y	> A	; AAA3 =	: 9	=B:	8 8::	> 7 > 3 >
j x x j ... x	: C7F	A7 B9B3D	B D98	8 7DE3D9	: 9 AE9	97 A8C3AF



Vn" w@n" anor yM-" ff' ff' q anoy ; 47

a. zx x x o fl	a W		ax x W fi	
	9797	9798	9797	9798
/80	/A0	/B0	/870	/880
a-sy -	9	4	88>	83>
Ksv—	A	4	:7:	73>
d+sts sy ≤	:	4	8>8	4
U fl	4	4	889	83>9
d +sts sy ≤	4	73>	87;	4
as-as≤	4	4	>	4
e ±s	8=	A3>	A=8	73>>
ds v±	4	4	;B	4
es -s≤W fi	8:	4	8:7	4
d-sz -	A	4	87;	4
T fsy	B	4	8-9	73>8
d ±fl	88	4	9:;	73>8
d ±fl Ks s	9	4	89A	4
as s ± e t sy	9	4	97>	73>A
Ks	8>	93>7	887	73><
d Psv sy	<	4	977	4
J sy sfl Mw -	88	4	9AA	73>9
Ks f s s	4	4	8;B	73>8
V sy sfl s	89	4	8: B	73>A
d-s sy sy	>	<3>	8A8	73>8
<b>j x x j... x</b>	<b>89C</b>	<b>8C3&gt;7</b>	<b>: E89</b>	<b>C3C</b>

d flt w6s tvD M-s aw s-s≤Tst s wses s≤ fwey sz6Kx z' ffi vZ tv sver rfi ffzeflxry cvxvft

**m**  
**jwx - E7B7**

**i i f d c**  
**m d m m 1 2B9B9**  
**B9BA**  
**f z y T w- x i xz y w z j - R**  
**jw w j- w h- - y 0 4A8A8 w z A8A9**

a.zx xx o fl	a..x xix k l fi		a..x x W		ax ... n flfi	
	9797	9798	9797	9798	9797	9798
/80	/90	/:0	/:0	/<0	/=0	/>0
a<=>y -	;8<=>9	B;883<7	8A73<	7378	87; ;3<8	87B93<7
Ksv—	>B; 39	BA7<37	:<=>3<	8>377	9>793<	<<3<7
d<sts>y ≤	=883<	8=A: 3<7	9A=>3A	4	: 9873<7	<7>3<7
U fl	<AB37;	977; 3<7	87A377	9377	>A; 3<	8 ><3B7
d <sts>y ≤	<<A3<	AB; A377	8B<37:	8>B377	: 87A3<B	9A377
as<vs>s≤	: A377	8A3A7	9883;	4	9< 3>	8A73A7
e ±±	: <A3;	<73>7	9783<7	4	9 <7>3B;	8B773<7
ds v±	: B3<7	4	8AB3<	4	9>7377	; 93<7
es <≤Wb ft	; 88377	8=>377	:: ; 3<	=B377	8; A=>3;	8; ; 37
d<sz -	; ; 3B	B377	AB3>	4	>73A	B: 93<7
T fx<y	A8B3<=	8: 97<377	>>37=	83A7	=B33<9	:: ; 8B377
d <=fl	>AA3;	<A8B377	=>>3B	>83A7	88; <3<7	8 =>3<7
d <=fl Ks s	9A739>	: A<=>7A	: 9<3 8	B83A7	=7; 3>	997377
as s t e t<y	9=>3A<	9=>377	:: B3<8	; 8377	< 73A8	; 7; 37
Ks	97: 3;	=B377	: B=>7A	8A7377	9B; 37B	: 3<7
d Psv <y	98A3 =	; 8>377	; >37;	8A9377	87983A	: >: 377
J<=sfl Mw -	: =738	99793<7	; <83<<	8A=>377	88; 73<	: A: 377
Ks f s s	9>93 9	8=>8377	: 8; 39	: 83<7	; <A3<=	BB3A7
V s<= sfl s	<= 3 A	:: A78377	=>8377	8=>377	=B737:	87<377
d<=s<y <y	9>83A>	8; =>377	:: ; 377	=377	A<B3A	; B<3 7
<b>jx x j... x</b>	<b>DFFF377</b>	<b>887: 8C3E</b>	<b>C D893C</b>	<b>87DC378</b>	<b>9: C9F378</b>	<b>8A9F7377</b>



Vn" w@n" anor y5M-" ff' ff' q anoyr ; 44

a. zx x x o fl	a W		ax x W fi	
	9797	9798	9797	9798
/80	/A0	/B0	/870	/880
a-sy -	937	4	> BB	83B7
Ksv—	839	4	9: 93 :	73A7
d-ts-sy ≤	: 37	4	B>B;	4
U fl	4	4	=A3;	73-87
d-ts-sy ≤	4	73-7	A=37	4
as-s-s≤	4	4	973-A	4
e ±s	8=37	837	B=B<	73< 7
ds v±	4	4	BBA	4
es -s≤Wb fi-	8: 37	4	B8B>	4
d-sz -	A37	4	; 93A8	4
T fs-sy	83A>	4	87: 37	738; 7
d -sfl	8837	4	9; =B=	738; 7
d -sfl Ks s	937	4	B83 B	4
as s t e t-sy	937	4	88A3AB	73 77
Ks	: 37B	4	>=3;	73: <
d Psv -sy	<37	4	8893 7	4
J-s-sfl Mw -	838;	4	9A: BB	73-77
Ks f s s	4	4	AA3=	73A7
V-s-sy sfl s	: 38:	4	BBB<	737-7
d-s-sy -sy	>37	893-7	8; : 3-9	73A7
<b>j x x j... x</b>	<b>DF3AB</b>	<b>8; 37</b>	<b>9 8E: 3F</b>	<b>; 3&lt; &lt;</b>

d flt w6s tvD Mss aw sss≤Tst s wses s≤ freveysz6Kx z ffi vZ tv-svr rfl ffevflxry cvxvft

ETC

nRgRf Rg i RgYRg  
Ue e S R h e f i

$\frac{m}{jwK} - ETC$

e R m i i f  
d c m d m  
m 1 5B9B9 B9BA  
f w -z P -w fwzz w z i -y zw U z R x  
i xz y w z j - R j w w j- w h - - y  
0 w 4A8A8 w z A8A9

a.zx x x o fl	fx-ix x s hfi lfi		fx- U Y hfi lfi	
	9797	9798	9797	9798
/80	/90	/:0	/:0	/:0
a-sy -	8 >8=	8 >8=37	4	4
Ksv—	87<	87<37	4	4
d+sts≤	>	9 >937	9=	4
U fl	9<	9<37	4	4
d sts≤	: 877	>37	4	9 <37
as≤s≤	9;9	9;937	4	4
e ±s	AA	8 <A37	4	4
ds v±	8 <A	AA37	<	4
es -s≤V6 fi	8 989	8 98937	4	4
d-sz -	97	9737	<A9	<A937
T fs≤	9;;9	9;;937	87=8	8 97737
d ±fl	8 =B9	8 =B937	8 : B7	8 : B; 37
d ±fl Ks s	8 A>	8 A>37	=>	: 9737
as s t e t ≤	::7	::737	8 <>	8 <937
Ks	9 A79	8 >A937	A<9	4
d Psv ≤	8 >A9	9 A7937	4	B: 737
J ≤sfl Mw -	B77	: 8A; 37	4	=37
Ks f s s	: :BB	B7737	89	4
V s ≤ sfl s	8 B<	8 B<37	A<	4
d-s≤ ≤	8 B>	8 B>37	8 997	8 98837
jx x j... x	9E BCF	9D DDA37	DADB	D9FA37



Vn" w@" anor yM- " ff' ff q anoy ; 47

a .zx x x o fl	Yx i fi		ky ax Wf fi fi	
	9797	9798	9797	9798
/80	/=0	/>0	/A0	/B0
a-sy -	<B	9=77	:	: 37
Ksv—	: 8	4	9	4
d+sts≤	87>	4	4	837
U fl	4	937	4	4
d sts≤	97	B37	4	837
as≤s≤	4	4	4	4
e ±s	4	4	4	4
ds v±	4	4	4	4
es -s≤W6 fi-	4	4	4	837
d-sz -	: <	937	4	937
T fsy	: <7	4	9	: 37
d ±fl	8B<	=77	8	837
d ±fl Ks s	4	8: 37	8	4
as s t e t-y	8B7	4	:	: 37
Ks	9<	4	4	4
d Psv sy	4	4	4	837
J-sfl Mw -	4	4	4	4
Ks f s s	4	4	4	4
V s-sfl s	>	4	4	4
d-sy sy	4	4	4	4
<b>jx x j... x</b>	<b>8 7ED</b>	<b>BE37</b>	<b>89</b>	<b>8C37</b>

d flt w6s tvD Mss aw s≤s≤Tst s wses s≤ fweysz6Kx z ff' vZ tv sver rfl ffvflxy cvxvft



Vn" w@n" anor y5M-" ff' ff q anoy ; 47

a.zx x x o fi	ky Yx x o l fi		a...x o fi V fi	
	9797	9798	9797	9798
/80	/=0	/>0	/A0	/B0
a→s y -	4	4	4	4
Ksv—	4	4	4	4
d→sts y ≤	4	4	4	4
U fl	4	4	4	4
d →sts y ≤	4	4	4	4
as≤s≤	4	4	4	4
e ±s	4	4	4	4
ds v±	4	4	4	4
es -s≤Vb fi	4	4	4	4
d-sz -	4	4	4	4
T fi s y	4	4	4	4
d →s fl	4	4	4	4
d →s fl Ks s	4	4	4	4
as s † e t s y	4	4	4	4
Ks	4	4	4	4
d Psv s y	4	4	4	4
J →s fl Mw -	4	4	4	4
Ks f s s	4	4	4	4
V s →s fl s	4	4	4	4
d-s →s y	4	4	4	4
<b>j x x j... x</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>

d flt w6s tvD M s aw s s s t s s w s s s f r e v s z 6 k x z f f i v Z tv →v r fl f f e v f l x r y c v x v f l t

$\frac{m}{jwx} - ETCB$

e R i m i i f  
 d c m d m  
 m 1 2B9B9 B9BA  
 Ww - -z P -w fvzz w z i-y zw U z R x  
 i xz y w z j - R j w w j- w h- - y  
 0 wAA8A8 w z A8A9

a.zx xx o fl	fx-ix x s hfi lfi		fx- U Y hfi lfi	
	9797	9798	9797	9798
/80	/90	/:0	/:0	/:0
a-sy -	55	8:;=	55	4
Ksv—	55	>9	55	4
d-tsts y ≤	55	9<77	55	4
U fl	55	8=	55	4
d ts y ≤	55	87<	55	87
as s s ≤	55	99B	55	4
e ±s	55	89B7	55	4
ds v ±	55	>A	55	4
es -s≤W6 fi	55	87B>	55	4
d-sz -	55	89	55	;79
T fs y	55	8AB>	55	A7<
d ts fl	55	8-B9	55	8⇒
d ts fl Ks s	55	8A>7	55	4
as s t e t y	55	;:7	55	88;;
Ks	55	8; >9	55	4
d Psv y	55	9; B>	55	; <7
J s fl Mw -	55	: : BB	55	-9
Ks f s s	55	=;	55	4
V s s fl s	55	8B<7	55	A<
d-s y y	55	8BBA	55	87-9
jx x j... x	55	9BA8A	55	BCEA

Vn" w@n" anor yM- " ff' ff' q anoy ; 48

a .zx x x o fl	Yx i fi		ky ax W fi fi	
	9797	9798	9797	9798
/80	/=0	/>0	/A0	/B0
a-sy -	55	98	55	8
Ksv—	55	4	55	9
d-tsts-y ≤	55	4	55	8
U fl	55	4	55	4
d -tsts-y ≤	55	A	55	8
as-s≤s≤	55	4	55	4
e ±s	55	4	55	4
ds v±	55	4	55	4
es -s≤V6 fi-	55	4	55	8
d-sz -	55	8	55	9
T fi-sy	55	4	55	;
d ±sfl	55	=	55	8
d ±sfl Ks s	55	4	55	4
as s t e t-sy	55	4	55	8
Ks	55	4	55	4
d Psv sy	55	4	55	8
J-syfl Mw -	55	4	55	8
Ks f s s	55	4	55	4
V s-sy sfl s	55	4	55	4
d-s-sy sy	55	4	55	4
<b>jx x j... x</b>	<b>55</b>	<b>:C</b>	<b>55</b>	<b>8C</b>



Vn" w@n" anor yM-" ff' ffq anoy ; 48

a.zx x x o fl	ky Yx x o l fi		a.r..x o fiV fi	
	9797	9798	9797	9798
/80	/=0	/>0	/A0	/B0
a-sy -	55	4	55	4
Ksv—	55	4	55	4
d-tsts-y ≤	55	4	55	4
U fl	55	4	55	4
d -tsts-y ≤	55	4	55	4
as-s≤s≤	55	4	55	4
e ±s	55	4	55	4
ds v±	55	4	55	4
es -s≤V6 fi-	55	4	55	4
d-sz -	55	4	55	4
T fs-y	55	4	55	4
d ±sfl	55	4	55	4
d ±sfl Ks s	55	4	55	4
as s t e t-y	55	4	55	4
Ks	55	4	55	4
d Psv -y	55	4	55	4
J-y-sfl Mw -	55	4	55	4
Ks f s s	55	4	55	4
V s-y sfl s	55	4	55	4
d-s-y -y	55	4	55	4
<b>jx x j... x</b>	<b>55</b>	<b>4</b>	<b>55</b>	<b>4</b>

d flt w6s tvD M-s aw s-s≤Tst s wses s≤frewsyz6Kx z ffi vZ tv-sver rfi fzevfxry cvxvft

$\frac{m}{jwx} - E\text{X}\text{X}$

i i i f d c  
 m d m m 1 5B9B9  
 B9BA  
 f z y f w z w z i - y z w U z R x  
 i x z y w z j - R j w w j - w h - y  
 0 14A8A8 w z A8A9

a.zx x x o fl	fx- ix x s hfi lfi		fx- U Y hfi lfi	
	9797	9798	9797	9798
/80	/90	/:0	/:0	/:0
a-sy -	=A7B3 <	<A9>37	4	: <A737
Ksv—	: B>3B9	: : 8; 37	4	4
d-tsts y ≤	88 7.: 3A	88 7.: ; 37	4	4
U fl	>737	<737	4	4
d ts ts y ≤	97; 3B	: 7=37	B: 3A	4
as s y s ≤	>B<3B	>8<37	4	4
e ±s	=B>737	<.: : 37	: A93 A	4
ds v ±	9.: 3>	9.: : 37	4	4
es -s≤W6 fi	9 AA: 3A	: AB<37	: A37=	4
d-sz -	<B3 ;	: =37	9; 7>37	8 < A37
T fs y	A=B<3B:	>: A837	; >837<	: 7=B37
d ts fl	=>9B3AA	=A: 837	<: >B37	=9: 37
d ts fl Ks s	><: =3A	>A: 737	9 <<A>A	4
as s t e t y	8 98=3A	8; 8; 37	<=>937;	; =A>37
Ks	>9A73 9	=AA>37	4	4
d Psv y	88: <<37	87 = B37	: : B>A=	8 >8937
J s fl Mw -	87 8<937:	8; : B737	8=A3 7	9; : 37
Ks f s s	: ; ; 83>	9; 9; 37	4	4
V s y s fl s	B 799A<	>=7>37	9>B<	: 7: 37
d-s y y	B; A: 3;	>A8: 37	; ; : A3 >	; : 9: 37
jx x j... x	87E CAF3D7	87A B9A37	9F BBB3D	9C 8AF37



Vn" w@n" anor y5M-" ff' ffr q anoy ; 44

a.zx x x o fl	Yk i fi		ky ax Wi fi fi	
	9797	9798	9797	9798
/80	/=0	/>0	/A0	/B0
a->sy -	8>BB<	=>37	B=>;	8B37
Ksv—	>38	4	8>38	:<37
d+sts>y ≤	<837	9<37	8>3A	8>37
U fl	4	4	8>3<=	4
d >sts>y ≤	::73=	4	4	8=>37
as>ys≤	4	4	4	4
e ±s	4	4	4	4
ds v±	4	4	4	4
es -s≤W6 fi-	4	4	8>3A	8>37
d-sz -	B=3A8	:37	4	:937
T fi>y	AB937	4	:=>BB	>937
d >fl	<883=	8=>37	8>3=	8A37
d >fl Ks s	4	4	8>3A	4
as s † e t>y	<7:37	4	>937	8A37
Ks	4	4	4	4
d Psv >y	<73<	4	8>3<	8A37
J>sfll Mw -	4	4	4	8>37
Ks f s s	4	4	4	4
V s>y sfls	8A83AA	4	4	4
d-s>y >y	4	4	4	4
<b>jx x j... x</b>	<b>9A&gt;3 B</b>	<b>87E377</b>	<b>:9&gt;3 &lt;</b>	<b>9&gt;B37</b>

Vn" w@n" anor yM-" ff' ff q anoy ; 44

a.zx x x o fl	ky Yx x o l fi		a...x o fiV fi	
	9797	9798	9797	9798
/80	/=0	/>0	/A0	/B0
a-sy -	4	4	4	4
Ksv—	4	4	4	4
d+sts≤	4	4	4	4
U fl	4	4	4	4
d sts≤	4	4	4	4
as≤s≤	4	4	4	4
e ±s	4	4	4	4
ds v±	4	4	4	4
es -s≤V6 fi-	4	4	4	4
d-sz -	4	4	4	4
T fsy	4	4	4	4
d stfl	4	4	4	4
d stfl Ks s	4	4	4	4
as s t e t-y	4	4	4	4
Ks	4	4	4	4
d Psv sy	4	4	4	4
J-sfl Mw -	4	4	4	4
Ks f s s	4	4	4	4
V s-y sfl s	4	4	4	4
d-s-y sy	4	4	4	4
<b>jx x j... x</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>

d fltw6≤ tvD M≤ aw s≤s≤Tst s wses s≤ fweysz6Kx z ffi vZ tv-sver rfl ffevflxy cvxvft

**E7D i Vm/kgRdRg  
bX Tij e Ra**

$\frac{m}{jwK} - E7DA$       i      m      S      f      d      c  
 m      d      m      m      1      25B9BA  
 b - y f      w x i x S      y w z a z      b - y  
 j w w      j - w h - - y 0 -wz 1A8A9

a.zx x x o fl	ix W	Y... j... x G h a..yx V fi	a -x d
/80	/90	/:0	/:0
a<=>y -	8:8	<8	4
Ksv—	:::	8>8	4
d<+sts>y ≤	>8	4	4
U fl	9B	A	4
d <+sts>y ≤	>	4	4
as<=>s≤	9;<	;<	4
e ±±	9=A	⇒⇒	9
ds v±	8=9	<<	4
es <=>Wb fi	;=	9B9	4
d-sz -	4	4	4
T fi>y	<89	>>	4
d <+fl	879	A89	4
d <+fl Ks s	;8	A<=	4
as s <+ e t >y	88	:A;	4
Ks	=	AA<	4
d Psv >y	99	87A9	4
J <+sfl Mw -	8>	B<<	4
Ks f s s	B	⇒9	4
V s <+ sfl s	9B8	: <<	4
d-s>y >y	:<8	⇒	4
<b>j x x      j ... x</b>	<b>9 FBE</b>	<b>88 C: E</b>	<b>9</b>

d flt w6d< tvD M<= aw s<=>≤Tst s wses s≤ freveysz 6Kx z ffi vZ tv >ver r fl fzevfixy cvxvft



**m**  
jvx - EDB

i m d f d c  
m d m m 1 ZB9BA  
i w Rw -f w x i x S y w z a z  
b - y jw w j- w h- - y 0 -wz 1A8A9

a.zx x x o fl	ax y c fi	Y... j... x G h R yx o	Oxy l
/80	/90	/:0	/:0
a-sy -	:A8	88<	>:
Ksv—	≡<	8=	;A9
d±sts≤	9A>	;	:79
U fl	9>9	4	:99
d ±sts≤	8=A	4	98;
as≤s≤	<A9	89;	;98
e ±s	≡	4	;=A
ds v±	:79	4	;8>
es -s≤V6 fi-	;B7	4	:A=
d-sz -	AA	4	89>
T fx±	8<<7	;<	:B;
d ±fl	AA=	87=	>99
d ±fl Ks s	879;	8<	><
as s ± e t±	9A>	4	;>
Ks	88A7	4	:A7
d Psv ±	:⇒	4	:7<
J±sfl Mw -	;8	4	;98
Ks f s s	9;:	4	;≡
V s± sfl s	8=8=	⇒	879<
d-s± ±	8A<	9<	A<<
<b>jx x j... x</b>	<b>8: BE</b>	<b>FDD</b>	<b>F CEF</b>

d flt w6s tvD M±s aw s±s±Tst s wses s±frewsyz 6Kx z ffi vZ tv±ver rfl fzevflxry cvxvft

$\frac{m}{jwx} - EDC$

**c m U f d**  
**c m d m m 1 2B9BA**  
**d x- i w - -z b - y f w x i x**  
**S y w z a z b - y j w w j- w h- - y**  
**0 -wz 1A8A9**

a.zx x x o fl	ix W	a..yx V fi	ax y Wfi	R yx o	Oxy l
/80	/90	/:0	/:0	/:0	/:0
a→y -	×	:8	:9	4	8<9
Ksv—	:A	8A	<A	4	≠
d†sts≤	:A	;	9=	4	AB
U fl	9<	4	8<	4	; >
d †sts≤	=	87	8A	4	B>
as≤s≤	B>	87:	>8	<	8A=
e †s	8<	:8	;9	4	878
ds v±	8:	: =	A	4	A=
es -s≤V6 fi-	8;	8:	9=	:	8: >
d-sz -	:	B	>	4	8>A
T fi→	8=	9:	≠	A	8<
d †fl	8;	: >	<	:	887
d †fl Ks s	;	=8	≠	89	B=
as s † e t→	>	4	:	4	8; =
Ks	8A	8=	:;	4	≠
d Psv →	:	9<	88	4	AA
J→sfl Mw -	4	<	98	4	8=
Ks f s s	;	4	4	4	B<
Vs≤ sfl s	8	9=	B	4	8:;
d-s→ y	88	9>	99	4	888
<b>jx x j... x</b>	<b>A79</b>	<b>CD:</b>	<b>BF7</b>	<b>:8</b>	<b>9:ED</b>

d flt w6d≤ tvD M≤s aw s s≤s≤Tst s wses s≤ frewysz 6Kx z ffi vZ tv sver rfl fzevflxy cvxvflt

$\frac{m}{jwx} - EDD$

i U m f d c  
 m d m m 1 2B9BA  
 c-wf zy b-yxi xz ywza z  
 b-y jww j-w h- -y 0 1A8A9

a.zx xx o fl	ix W	a..yx V fi	ax y Wfi	R yx o	Oxy l
/80	/90	/:0	/:0	/<0	/=0
a-sy -	<	:8	:9	4	8-9
Ksv—	:A	8A	<A	4	=<
d+sts≤	:A	;	9=	4	AB
U fl	9<	4	8<	4	; >
d +sts≤	=	87	8A	4	B>
as≤s≤	B>	87:	>8	<	8A=
e ±s	8<	:8	;9	4	878
ds v±	8:	:=	A	4	A=
es -sV6 fi-	8;	8:	9=	:	8: >
d-sz -	:	B	>	4	8>A
T fi≤	8=	9:	=<	A	8<
d ±sfl	8;	:>	<	:	887
d ±sfl Ks s	;	=8	=<	89	B=
as s ± e t≤	>	4	:	4	8; =
Ks	8A	8=	;;	4	=
d Psv ≤	:	9<	88	4	AA
J ±sfl Mw -	4	<	98	4	8=
Ks f s s	;	4	4	4	B<
V s≤ sfl s	8	9=	B	4	8: ;
d-s≤ ≤	88	9>	99	4	888
<b>jx x j... x</b>	<b>A79</b>	<b>CD:</b>	<b>BF7</b>	<b>: 8</b>	<b>9: ED</b>

d flt w6d≤ tvD M-s aw s s≤s≤Tst s wses s≤ fwevysz 6Kx z ffi vZ tv sver rfl fzevixry cuvvt

$\frac{m}{jwx} - EDE$

i m n f d c  
 m d m m 1 25B9BA  
 f f w x i xz y w z a z f  
 jw w j- w h- - y 0 -wz 14A8A9

a.zk x x o fl	N x 0 x h fi W	W Y	W c x x Y
/80	/90	/:0	/:0
a-sy -	8; 9A=	; AA	89;
Ksv—	8; A87	8=>	>
d+sts≤	8A7<	;8;	::7
U fl	8BB<	;=	
d +sts≤	8<;7	:77	:<
as≤s≤	8; ><	899<	=B7
e ±s	8=>9;	>>	;9:
ds v±	877=	9A9	979
es -s≤V6 fi-	8=A7	::8	9;
d-sz -	87899	8>>	9AA
T fi≤	9AA9;	8877	<
d ±fl	:88<	=<	=8:
d ±fl Ks s	:7=A7	>A<	=><
as s t e t≤	88::>	::=	<
Ks	9<>77	AAB	<B
d Psv ≤	99A9;	A=>	=><
J≤sfl Mw -	9>A<	=>	;A:
Ks f s s	987=	>>8	;=<
V s≤v sfl s	:A79<	8=:	A97
d-s≤ ≤	9; <=	8<<	>A<
<b>jx x j... x</b>	<b>A89 CDA</b>	<b>8B C89</b>	<b>87 8D9</b>

d flt w6d≤ tvD M≤ aw s≤s≤Tst s wses s≤ frewysz 6Kx z f fi vZ tv sver rfi fzevflxry cvxvft

**m**  
**jvx - EDF**

**i U n f d c**  
**n d m m 1 2B9BA**  
**c -wf zy f x ixz ywza z**  
**f jw w j- w h- - y 0 14A8A9**

a.zx xx o fl	N x 0 x h fi W	Y... k x G l W Y	W cx x Y
/80	/90	/:0	/:0
a-sy -	9; 3>	: 3 B7	93=7
Ksv—	983A; >	93=	; 3A7
d+sts≤	8>3<8	83-A8	93-A7
U fl	8A3A8<	9378;	; 377
d sts≤	8<79;	83-A>	93 <7
as≤s≤	; >99B	: 3; =	9397
e ±s	9<3 8A	93>8>	: 3A7
ds v±	8A3B7<	83-A7	93>97
es -s≤V6 fi-	8A3B77	93B9=	93-A7
d-sz -	8<3 8B	83>97	93; 7
T fs≤	:: 3A:	; 3 B:	: 3-87
d ±fl	:: 3<	; 3B<	: 3>
d ±fl Ks s	: 93A7B	: 3<9	: 3>77
as s ± e t≤	973A7:	93AAA	: 3 >
Ks	9; 3-B;	93<8	: 3<7
d Psv ≤	8>3 B<	8B; =	93-A7
J sfl Mw -	983 7>	93 >7	93A97
Ks f s s	983A=	93799	93 >
V s≤ sfl s	9; 3-B	: 3-8B	: 3-B7
d-s≤ ≤	983 <	: 3: 8	93<7
<b>j x j... x</b>	<b>AEBF: E</b>	<b>BA3E7</b>	<b>C8FD7</b>

d fl tw6d≤ tvD M≤s aw s≤s≤Tst s wses s≤ fwevsz 6Kx z ffi vZ tv sver rfl fzevflxy cvxvft

EÆ i VklRgRg  
UX WTho

$\frac{m}{jvk} - EÆA$  c k m e R S f 5  
c i S d m m  
B9BA  
d x- W - z w z P -w P wy -x a z  
P wy - jw w j- w h- - y 4A8A9

Y... 0 --x x g U fi	h x jx x d	b x N .x/ x0 U fi1 fi2
/80	/90	/:0
ls Wr flv	:737	8<37
esfl ts± L rtfēyhr v aflu	A37	8=>37
T flfl Pvyhr v aflu	=>37	8>37
Ss sy J sy Pfer flx Yv	9737	93AA
Twsfl ts Mxv	4	4
ds sz aruu Pzflu	4	4
awfl twszs≤ Rr tyv	8<37	:3A<
<b>Y x φ fi</b>	<b>8: F37</b>	<b>97C3:</b>

d fl twēd≤ tvD Mss Twfs s≤vs≤aw-ds≤Tst s wses s≤ fēwsysz 6Wr flvK rz rfluPzyvz Z tvsver rfl fēvflxry  
cvxvft

$\frac{m}{jwx} - E\bar{E}B$

c i i S f c b  
 d m m 5B9BA  
 j w f z y P wy -x a z U j w w  
 j- w h- - y 4A8A9

Y... Wx g b	f - / 0 l 1 2
/80	/90
Uwfw e≤ vu≤dyr vuM y	: 97777
V s Mefi fi sfiM	8; 7777
Wfs Yzfifzfi z	8<777
P sflw Qzfl Q≤ rfi	==7
as ≤ arfixr z M y	>77
e-s≤y dvr t t fi sv	A777
Ts±s dffr v	=87
f vs≤ygs≤fl w h yzvfifx y zfi	8<777
<b>Y x φ fi</b>	<b>E8: D97</b>

d fltw6d≤ tvD M≤ Twfs s≤vs≤aw±s≤Tst s wses s≤ fiewsz 6Wr zlvK rz rfluPzyvz Z tv≤ver rlf fzevflxry  
 cvxvft

$\frac{m}{jwx} - E\Xi\Xi$

c i i S f m  
 d m m 5B9BA  
 d x- P wy -f z y x g w - j w w  
 j- w h- - y 4A8A9

$\frac{j}{m} \frac{x}{fi}$	$\frac{f}{l} - \frac{0}{12}$
/80	/90
e - $f_5 \leq R$ 7 b r v	9788<
e - $f_5 \leq R$ 8 <sup>th</sup> b r v	977 A77
e - $f_5 \leq R$ 9 <sup>th</sup> b r v	97B=77
e - $f_5 \leq R$ : ' b r v	9798>
<b>9798</b>	<b>E8: D97</b>

d fl t w d ≤ tvD M= T v f s s ≤ s v s ≤ a w - s s ≤ T s t s v s e s s ≤ f f e w y s z 6 W r z i v K r z r f l u P z y v z Z t v s r e r f l i z e v f l x r y c v x v f t

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$\frac{m}{jwx} - E\bar{E}\bar{D}$

i i m f d  
 U E Ymf c b d m  
 m 5B9BA  
 Rw -U - f z y k Q w k z- DVj x a z  
 U jw w j- w h- - y 4A8A9

Y... Wx g b	f - / 0 l 1 2
/80	/90
J fi 4fi Kws DKs s± vs Kws .d y rvflr sr rt ur/	9=A; B7
Ks ≤wsey . Myrfll ≤ tyrfll ≤/	8B8 > 7
Ks ≤ sy . dxrfl trflrffl ffi /	8A=A787
Ks sfiQ-sfl . ar r ≤fir v flxv /	B=9; ;
Ks sfa z . arfi r xvfl v /	87>B: 8B
Kwfs ≤± W xzffv yrffi /	8A789B
L fl -4u fl -V≤ffl ≤tyzflvfl /	9=<7A8
N± ± ≤sy . ar rtrv z≤ff rff z/	8 >B; A=>
Ts±s Ss s sy P y-U s ≤ fivfl ≤-us 0	8BBA>=
Ts±s Vwsz /U s ≤ t-sw≤s 0	: A: 79<B
Ts±s a zDKs sfl ≤y-/Ls w usfus -wv0	98<A=
Ts s 4ts s /aws ≤ -≤fi sy-fl s ≤ 0	8: 9<<7>
Twfl t sy Uwf ±/cs wffiyw ±s sy s0	8 < B8A9
Twfl t sy awvfl s ≤/cs wffiyw t suz u	8: ABA<9
Tw -sy /Ls -fi flsu fi 0	9=8 <77
Tws V sus ≤/N -swz wfi x u y s 0	: =>A997
T w/Ls s sy -w s fls 0	: >> A77
Us s sy /Mws w ≤ fls sv 0	8: 7=9B8
Us /e -z -≤ fw 0	88A<8;
Uwfl /ds v-svffl fivfl 0	88BA9: <
Uwsz /Lz ≤ yfi s wfl	> ; ; <
U t w /as ≤ fi- s y 0	8A: 977
V s ≤ sy Kws /J - z s s ≤ 0	AB7 >8A
as -Ks fi ±/Q-fl s ≤ s sy fs s0	-8>=77



Vn" w@n" anor ySM- " ff' ffr q anoy ; 4 4

Y... Wx g b	f - / 0 l 1 2
/80	/90
aw ww±K s/ fīs ≤ Wzsrflr y szlu /	899: 77
cs..s/ys ≤.a ≤ fl v rxz /	AB 9AB
dwt vīs z .a v s/uv v fivz/	: < -97
dvis T ≤s/ .dvfi s/uv fī sfi z/	: 9B: B7
d s/ .ayr r s/yt fī y/	88=A8:
es fīs s/4 s fīs s/ .dt s/ sv s/uv fī r fl/	; AB B9=
es s/4 s s/4 s/ .V +fl wffz r fī fī r/	⇒ 7 ⇨
ewesyy --.dt s/ sv s/ ≤ t s/ fī v s/ fl/	8 > 8 =87
ew -W6 -Ofit rtzy s/ flr uv z z/	89 > A777
e vs ± ev r r fī x z ≤ z/	A: B =77
e s/ ± fī .K z yr r u/	8 A7A > 8B
f vs s/ gs s/ fl w. av fl r v r fī fl r fī v z/	87; =B9B
<b>Y x φ fi</b>	<b>A8 AB: D77</b>

d fl t w6d ≤ tvD M s Twīs s ≤ vs ≤ aw -s s ≤ Tst s wses s ≤ fī ewesyz 6Wr zlvK rz rflu Pzyv z/ Z tv s/er rfl fī ev fī xry cvxvft

m  
jwx - EZE

c i i m f d  
U E Ymf m d m  
m 5B9BA  
d x- Rw -U - f z y k Q w k z- D  
Vj x g w - jw w j- w h- - y 4A8A9

j x m fi	f - / 0 l 1 2
/80	/90
e - f <sub>s</sub> ≤ R 7 b r v	B; B9 877
e - f <sub>s</sub> ≤ R 8 <sup>th</sup> b r v	B; B9 8<7
e - f <sub>s</sub> ≤ RR 9 <sup>th</sup> b r v	87 :: 88: =
e - f <sub>s</sub> ≤ Rj : ' b r v	89 8: A: 8;
<b>9798</b>	<b>A8 AB: D77</b>

d fl tw ≤ tvD M-s Twf s ≤ vs ≤ aw - s s ≤ Tst s v s s s f f e w s z 6Wr zlvK rz rflu Pzyv z Z tv sner rfi ffevflxy  
cvxvft

**BAB**  
Chapter

**06**

# ENERGI DAN INDUSTRI

*Energy and Industry*

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**i Vg cVeRI Rg mVdgB**

**j TRWdXPb de j Ti**

74 Un• n°v@° •..:q x°v •-@°°vny nqny nu u o "tn" n" @.n -ffff ffff n"t °ror"n.. n qv ..:q x°v qr"tn" •r.nyn@° n"t @.:.n°n"t qn" •-@°°v -ffff ffff n"t qn• n© qv ..:q x°v qr"tn" •r.nyn@° @.:.n°n"t @.:ro @wkn xn• n°v@° °r•r" u" n qv "nxn" 4

84 Un• n°v@° y°@x @.:.n°n"t nqny nu @.ny xn• n°v@° qn.v. °ry...u z r°v •rz on"txv@ y°@x n"t qv•r.n°xn" 4

94 c-y z r nv.or.:u n"t qvny .xn" nqny nu on" nx" n nv.. or.:u n"t qvny .xn" -y u •r...nunn" nv..or.:u .qnyz °n©n" z 9/4 'rz nxv' or°n...-y z r nv.or.:u n"t qvny .xn" z nxn nxn" °rz nxv' @.:r" uv xro ©un" x-° z r" nxn" nv.. or.:u4

: 4 T z y nu y°@x5t n°5nv.. or.:u n"t @.wny5qyv°@v°xn" nqny nu on" nx" n y°@x5t n°5 nv.. or.:u n"t qvny .xn" xr•nqn •n.n •rynttn" 4

; 4 [rynttn" nqny nu v qv vq n@ xry-z •-x2 onx ..z nu @"ttn2 •r...nunn" n@ v°@°v "- •..s@ n"t z rz ory nv..or.:u qn.v. •r...nunn" nv.. or.:u4

<4 [r"t z • yn" qn@v q °@vor°n... qn" °rqn"t qvnx xn" z rny v ' ..rvS' q °@v.Kr°n..qn" 'rqn"t

85 [-ff" ffnv pn• npvf •..:qffpfi-° v .ryntf-°°uv or ff rr" -ffff fffffunfv npfffnv •..:qffprq vfu fur v°ffhyr q r"ffv z r"fb n"q fur •-ff" ffnv -ffff ffff uvu p-ffq or •..:qffprq vfu vfv pn• npvf n° sfhy ffrq5

95 S°ffhyr q ry pffv pff pn• npvf v fur ff-fhy pn• npvf -s ny -•r.nff q •- r...yn" ff z npuv r°5

: 5 c-yffz r -s nff...qvffvffff q v fur nz -ffl ff-s nff..funffpn" or qvffvffff q o fur nff..p-z •n" /v fff'vf -s z : @aur t.rnff..fur -yffz r -s nff..qvffvffff q vf vy or v'p.rn°v ty sfhyr q fur "rrq° -s p-°ffz r.: s...pyr n" nff .5.

; 5 '-yq6 qvffvffff q y pffv pff 6 tn°6 pyr"rq nff... v ff-fhy ry pffv pff @ n°pyr n"rq nff... qvffvffff q ff pffiff-z r.:5

<5 Mffiff-z r.: n.r. v qv vffny -... t.:ff°3 ur fur... u-ffru-yq3 p-z •n" -...-°4 ..svfv° ffffff-° funff offi nff...°ff •y s.-z nff...°ff •y r°ffoyuz r"fb

=5 Nnff p-y pff-° -s yn.tr n"q z r qvffz °pnyr z n" ffnpfffv.t v p-° qffpff q fu..fft u aur Vn.tr

n"t qvnx°n"nxn" °r@n. @nu " °rpn.n y"txn. °r"° / °rwx @nu " 7B⇒ 4 ' ..rv S'q °@v. Kr°n...qn" 'rqn"t z r"pnx • °rz n • r...nunn" v q °@v. n"t z rz • " nv @°ntn xr.w 86 -.n"t n@n yow qr"tn" z r"tt "nxn" x r°v"r...S J4 [nqn @nu " 867<2' ..rvS'q °@v. Kr°n...qn" 'rqn"t @.v. @t.n°v qr"tn" 'r"° ° Nk--z v 867<4

n"q Wrqvffz Wn" ffsnpffiv.t O'ffoyuz r"ff 'ffi.r funff un° orr" q--"r n"°ffny s...nyy v'qffffv.° /pr"°ff0 °v'pr 8CA<5 Vn.tr n"q Wrqvffz Wn" ffsnpffiv.t O'ffoyuz r"ff 'ffi.r p- r.°. ny z n" ffsnpffiv.°6' qffffv.° vfu 97 -.xr.°.z -.r.o "ff°ff--"nv.r.S K5S' 978=3fur Vn.tr n"q Wrqvffz Wn" ffsnpffiv.t O'ffoyuz r"ff 'ffi.r n° v'fft.nffq vfu ffur 978= Qp--z v M"°ff0

⇒4 Uyn°vxn°w' q °@v. n"t qv "nxn" qnyz ° ..rvv' vor.qn°n.xr•nqn Uyn°vxn°vKnX Vn.n"tn" b°nun S'q--"r°v .UKVS4 UKVS nqnyu xy°vxn°v yn• n"tn" °nun n"t or.qn°n... xr•nqn S'ff.."nff--"ny 'ff"qn.q S'qffffvay Mjn°°vsnff--" -s Kyy Qp--"z v Kpffv'v' /S SVO .r.vv: n"t @ynu qv'r° nxn" qr"tn" x--"qv'v S'q--"r°v4

A5 aur v'qffffvay pyn°°vsnff--" nq--ffq v'fv' °ffi.r .rsr.°. ff fur Uyn°vxn°v Lnxffi Vn.n"tn" b°nun S'q--"r°v /ULVS5 ULVS v' pyn°°vsnff--" -srp--"z vnpffv'v' ° on°rq --" fur S'ff.."nff--"ny 'ff"qn.q S'qffffvay Mjn°°vsnff--" -sKyyQp--"z vKpffv'v' /S S.V. ; 0 funffun° orr" z -qsvrq npp-.qv't ff fur y-pnyv--"qv'v' v' S'q--"r°v5

A4 S'q °@v. z n" snx©... nqnyu ° n© xrtv@n rx--"z v n"t z rnx xn" xrtv@n" z r"t onu ° n© on.n"t qn°n... °rpn.n z rxn"v2 xv vn2 n@n qr"tn" @n"tn" °ruv'ttnz r"vqvon.n"t vqQv'r@°tnu vqQv' qn" n@n on.n"t n"t x .n"t "vyn' n z r"vqvon.n"t n"t yow @'ttv "vyn' n2qn" °vsn© nyow qrxn© xr•nqn • rz nxnvnxuv.4ar.z.n° x qnyz xrtv@n" v'v nqnyu w°n v'q °@v.qn" • r.xr.van" • r.nv@n" 4

B5 Wn" ffsnpffiv.t v'qffff..qrs'v'rq n° n" rp--"z v npffv'v' •.pr°°v't on°v t--q° z rpun°vnyy 3 purz vny' --.z n"ffny v'ff sv'ny --.v'ff.z.rqnvff t--q°5 Sff v' ny- qrs'v'rq n° •.pr°°v't -sy- r...nyff t--q° v'ff v'x ur...nyff t--q° n° sv'ny--.v'ff.z.rqnvff •.qffpff'5aur npffv'v' ny- v'py'qr °r...spr° s... z n" ffsnpffiv.t n"q n°°rz oy' t5

B4 Tn°n v'q °@v. nqnyu xrtv@n" v'q °@v. n"t z ryn n°vxr•r.y.n"

C5 'r...spr° s... z n" ffsnpffiv.t v' qrs'v'rq n°z n" ffsnpffiv.t npffv'v'

• unx ynv 4 [nqn xrtvn@“ v 2  
onun“ onx qvrqvxn” -yu• unx  
ynv 2°rqn“txn” • unx • r“t-yu  
un“ nz rynx xn” • r“t-yun““ n  
qr“tn“ z r“qn• n© v onyn“  
°ront nvony° w°n. • nu z nxy-“/4

uyvu °r...v t -fur. z n“ ffsnpffiv. t  
r°ffoyuz r“ff5 S’ fiv pnr3  
.n z nff.wy° n.r. °ff•yrq o  
-fur.∴ uvr fur -xr.∴ n.r.  
•nq n° n p-z•r“°nff-“ s-...  
•.pr°v t .n z nff.wy°5

764 [r...nunn“ n@ °nun v q °@v.  
nqnyu ° n© “v@ .xr°n© n“/  
°nun n“t z rynx xn“  
xrtvn@“ rx-“ -z 2 or. @wn“  
z r“tun°vxn“ on.n“t n@ w°n2  
@.y. @x • nqn ° n© on“t “n“  
n@ y-xn°v @. @“ @2 qn“  
z rz • “ nvpn@n“ nqz v v°n°v  
@.r“ qv.vz r“tr“ nv. .:q x°vqn“  
°@.x@ ..ovn n°r. @nqn °r-.n“t  
n@ yow n“t or. @“tt “t  
w no n@ °nun @. :ro @

875 K z n“ ffsnpffiv. t r°ffoyuz r“ff  
v qrsvrq n° n •. :qffpfr-“ ffr vf  
r“tntrq v rp-“ -z v npfv vf3  
•. :qffpv t t--q° -... °r...pr°3  
y-pnffq v n offiyqv t -...v n  
pr. ffrv y-pnff-“3 xrr. v t n  
offiv r°° .rp-.q p-“pr. :v t fur  
•. :qffpfr-“ n“q p-ff °fffpffir.3  
n“q un v t n•r. :--“ -.z -r. funff  
n.r. :r.°-“ °voy ff fu-°r npfv vfr°5

774 S’ q °@v. z n“ snx© ...  
qxyr-z • -xxn“ xr qnyz  
: t-y“tn“ or. qn°n.xn“  
on“ nx“ n•rxr. w2 nv© C’ q °@v.  
or°n....766 -.n“t •rxr. w n@  
yow/2v q °@vrqn“t 5z r“r“tnu  
.86 BB -.n“t •rxr. w/2 v q °@v.  
xrpv .; 7B -.n“t •rxr. w/2 qn“  
v q °@vz w. :.7 : -.n“t •rxr. w/4

885 Wn“ ffsnpffiv. t v qfffrv. ° n.r.  
pnff t-.vrq v ff-s-ffi.t. :ff°3on°rq  
-“ fur “ffz or...-s rz •y- rr°D  
yn.tr °pny z n“ ffsnpffiv. t /877  
rz •y- rr°- .z -r. Bz rqvffz °pny  
z n“ ffsnpffiv. t /97 CC rz •y- rr°B  
°z ny °pny z n“ ffsnpffiv. t  
/< 8C rz •y- rr°B n“q z v. :.  
v qfffr. /8 ; rz •y- rr°B

784 [rqntn“t nqnyu -.n“t n“t  
z rynx xn“ •r. qntn“tn“ 2  
z rz •r. wnyoryxn“ on.n“t n“t  
@qnx qv .:q x°v °r“ qv. 2 “©x  
z rz •r. :yu ° n© xr “©“tn“ 4

895 K z r.pun“ ffr n•r. :--“ u- ffnqr°3  
ffnqr° t--q° “-ff •. :qffprq o  
uv °ry3 ff- tn v n“ nq n“ ffr t5

794 ‘ .n© S’ b°nun [r. qntn“tn“  
.’ B@/ nqnyu ° .n© v v n“t  
qor. xn“ -yu z r“ @. v. n@  
•r. wmon© n“t qv°“ wx xr•nqn

8: 5 a.nqv t offiv r°° Vpr“ °r v n•r. z. v  
v°ffr q o n z v vff...n“ -ssvny  
n•-v ff q ff fur rz •y- r. :ff- pn...  
-ffff offiv r°° v fur svq -s ffnqr



• r"t °nun "©x z r ynx°n" nxn"  
°nun qv ovqn"t • r.qnt n"t n"  
qn" w°n4' Sb[ qor .xn" xr• nqn  
• n.n• r"t °nun onx• r. .n"t n" 2  
Qxz. n2 Lc2 [ a2 U• r. n°∅ KbWX2  
qn" °r ont n∅ n4

n" q °r...pr°5aur ypr"°r v° t v r" ff  
v° qv vqffnyr" ffr• .r." rffi:3Px.z. n3Mt3  
[ a3M--• r.nffv r3LbWX n" q°--" 5

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**F7A VgVkYb  
TdThVo**

**m U m 5i 5 U e i n7i eg**  
**j vx - F7A7A i 2 T i eg l 5B9B9 B9BA**  
**X w -z f -4f z y w z S x T- y**  
**f j & bd 5i x wQ w y 4A8A8 w z A8A9**

h z x p	9797	9798
/80	/90	/:0
M s ew s s s y /gJ0 Sf r fffu a s v .gK/	B=> >: A737	87: 7<9 77737
a v ±U- ±/± z0 Ofit z z a s u t z fl .ff y/	97=8=9<37	989 A= =A=37
U- ±ew .sfi/± z0 dr fff Ofit z z .ff y/	8>7 =89 8>>37	8>><9: BA83:
M-s±s-dwsv- /± z0 M s l fi z fl .ff y/	A<A>837	>AA <: 37
Q-fs y6d /± z0 Ofit z z V s .ff y/	: 3>>	: 39

d fl tw6d≤ tvD ae5aUW/aw w 0 sv5 Lst5 s y aUWd± f y5 6ae4aV 3 dz s fl L r fity

m  
jvx - FAB

o e m g i e i n i eg  
 1 2 T i eg l 5B9BA  
 iw- T-y y l -w z l w -x c f j b d 5  
 i x wQw y 4A8A9

0 x i	l ... r /a 0	d x rfi /h 0
/80	/90	/:0
Ss ≤ s -6Tr fl r	8 <B; <. 9 <37	8 < <=<9>B98377
Ont s -6Pvs r	8 : A=>8-B377	8 ; 8 >>9B; B; 9377
V s w6Wr ty	8 <7; A.: 7377	8 =>>> >=< <37
J -6K zfi	8 ; >B=78A377	8 =>77A: <B>377
V w6Wz	8 <8>9 8> 377	8 => >9 <=: 7A377
S ≤6T flv	8 ; A7: <87377	8 =8878.: 9 <A377
S fi6T ffi	8 ; ; BB <B=377	8 <=<7: >7 < 7377
Jy -6K x	8 ; <=<9>377	8 <7 >>>>>>377
dw wfl tw6dv vfi sv	8 ; ; 9: <=<377	8 <=<=: B97 B; >377
Y± tw6Zt ≤sv	8 <7B=98377	8 => =<A=>8377
W wfl tw6Y ≤vfi sv	8 ; ; 9: : 9377	8 <<B A9 <=: 7B377
Mw wfl tw6V tvfi sv	8 ; A>B =A: 3D:	8 => <=: 997 >=: 377

d fl tw6 ≤ tvD ae5aUW/aw w 0 svS LstS >y aUWd± fys6ae4aVY 3ds <flr L rfty

$\frac{m}{jwx} - FAX$

o i g i e f  
 S c i T i e g l 5  
 B9BA  
 R -zT-y y l -wzlw-xc wzj -  
 R - f j b d 5i x wQw y 4A8A9

$\frac{0}{i} x$	0	W-	f..... x	h x jx x d	i x o fi
/80	/90	/:0	/:0	/:0	/:0
$Ss \leq s -6lr fl r$	8; 8=A: >37	: 87=7; A37	8; ; <A; 37	B; 8B <: 37	<<<=9937
$Ont s -6pvs r$	8; A; ; <A37	9B7B B: 737	8; ; A = 737	>B<A>A37	<9=A737
$V s w6Wr ty$	8<7 = >37	: <88 8; >37	8; A8: 7; 37	>B; ; 8>>37	<7 >8<37
$J -6K zfi$	8; 9=78A37	: <B: : B837	8; = 9B737	>= >=AB37	<<=7; 937
$V w6Wvz$	8; ;: 9=937	: >8>B8B37	8; 997; A37	A797 <<937	<=A7>>37
$S \leq 6T flv$	8; <8 8B837	:: ><> 37	8; ; =; 7A37	>A=>; >37	<; 99A37
$S fi6T ffi$	8; =A; 7<37	:: ; 7 88>37	8; ; 9 >B37	>8>=>A37	<99 8: <37
$Jy -6K x$	8; <A: 9937	: 79A >A937	8; 9AB>B37	A77=7; 937	<9<=A=37
$dw vfi tw6$ $dv vfi sv$	8; 9; A> 37	: 9: 7 89<37	8; ; A < 937	>=8 A>A37	<8<: 7737
$Y \pm tw6Z \leq v$	8; >A =9A37	:: =9=837	8; ; A7A937	A7BA: 7>37	<<>9A<37
$W vfi tw6$ $Y \leq vfi sv$	8; 8>=> A37	9BB: 9: B37	8; ; <A>837	>A> AA=37	<; >A37
$Mwvfi tw6Wvfi sv$	8< <B< 37<	9B=9: : 37	8; A>B; =B8	A8; =; B73AB	<B; =; 37A

Vn" w@n" anor ySM- " ff' ffr q anoy <77

d x 6 fi /h 0					
0 x i	0 v	W- e	f..... x c	h x jx x d	i x o fi
/80	/90	/: 0	/: 0	/-0	/-0
Ss ≤ s -6r fl r	8 < 9 ⇒ < 99A377	: > 7 9B99 A=8377	97: A8A8; : A377	> 9::: 8 < 377	:: => B <= 8A377
Ont s 6r vs r	8 > 8: > 9 8 ⇒ 377	:: B: A; 77: < 377	97; ; B; ; 87377	= < A > A < ; ; A377	:: ; ; 9 > ; > 377
V s w6Wr ty	8A < A; B9; > 377	:: < ; < < : A8377	97B: 9A=A: > 377	> 7 A < > 88A377	; =99 > 9 79 < 377
J 6K zfi	8A7 ⇒ : A:: 7377	:: : 77 ⇒ = > 377	97 > 9A: B 7:: 377	> 9: < B > < 377	; > 9A >> < 377
V w6Wvz	8A: 7A9: 9= 377	:: ; =89: B 99: 377	978 < > A= 377	> A A =; ; < 8377	; > A =; > AB377
S ≤ 6t flv	8A9 < B: 8 < < 377	; 7 > 8=8 >; 7 > 377	97 < 9878 >> B377	< 7 = 78: > 377	; < B8 >= 99 < 377
S 6t ffi	8A8; ; <<>> 377	: BAB=98 79B377	97: ; 78A B > 9377	> 9A < 8A < BA377	:: ; 997B 7 < A377
Jy 6K x	8A: ; ; A: A9; 377	: =8 887=; : > 377	979 > 9 < A7; 377	> B ⇒ 7B A > 377	:: ; 9 ⇒ = 9AB377
dw vfl tw6 dv vfi sv	8 >> B= 8 < 8A377	: AAB=79 98 > 377	97; 87: 8:: = 377	> 9= > > 8 < 7; 377	:: ; ; A8 >: A; 377
Y ± tw6Zt ≤ v	8AB < > 97377	; 7 < 7 < 7 < B377	97 < : B; >>> 377	> 8B7: 98 > 377	; > 8 < 87 7 < 9377
W vfl tw6 Y ≤ vfi sv	8A8; AB7; 7A377	: = 7 >> 7 A: > 377	97: > 8 > 8 < < 377	> 8: = 8: = 7377	; = 8B9; 9A < 377
Mw vfl tw6Vvtrfi sv	8BB = 8 <= 98377	: = B A > 9; ; > 377	987 AA= 8 B= B377	A8B < > 8= 88; 377	< 8 7 ⇒ < 8 < 377

d flt w6d ≤ tvD ae5aUW/aw w 0 sv5 Lsts y aUWd+ fys6ae4aW 3dz < 6r L rflty

m  
jwx - FAD

c i 5o 5 g R f  
U i URf f d d  
m m 5B9BA  
d x- R - 4l -4w z l w - S mw-  
S x -z x fSPc x i xz y jw w j- w  
h- - y 4A8A9

a.zx x x o fl	f..x x j fl W	l r	..N R x x Y fl s fi / : 0	d x rfi /h 0
/80	/90		/: 0	/; 0
a-sy -	87>		8<; A	8>; 7A; 97
Ksv—	9A8		=9; 8	>9: <7: <7
d+sts sy ≤	888		: 9: ; =	: A79> >77
U fl	4		4	4
d +sts sy ≤	4		4	4
as sy s ≤	A9A:		= 7 A; 8	8 8AB =8B A7<
e ±s	; BA		89<; 7A	8>9 B7A ><
ds v ±	87=7		<8 BA9	878 A8=<87
es -s ≤W6 fi-	89: 7		: =>78B	<9; =BB = <
d-sz -	4		4	4
T fi sy	; 9		B>97	87 >87 777
d ±sfl	9<<		>9 77B	A: >9<9<7
d ±sfl Ks s	4		4	4
as s t e t sy	4		4	4
Ks	99>		>>7BA	BA AB>; 97
d Psv sy	99<		: <BAB	; 7: >; = 7
J ±sfl Mw -	=89		8>BB<	:: 8>7: A7
Ks f s s	4		4	4
V s ±s fl s	4		4	4
d-s ± sy	4		4	4
<b>jx x j... x</b>	<b>89 F: 8</b>		<b>8 AFE 7EC</b>	<b>9: E: C7E CCB</b>

d fl tw6 ≤ tv c aM V V sfiW6 fi v s ≤ aM V e- s s v -L s t s sy es s ≤ fi e w s y s z 6 aNKW w r f f r r f r flu aNKW e z r fl ruz z r fl f i  
ev fix ry L r f l ty

$\frac{m}{jwx} - F7AE$

c i 5o 5 g R f  
 U i URf f d i  
 d x- R - 4l -4w z l w - S mw-  
 S x -z x fSPc x Rw- R - jw w  
 j- w h- - y 4A8A9

ax ... f..x x	Y x f..x x	l ...	d x
Wf W	j fl W	r / :0	r fi /h 0
/80	/90	/: 0	/; 0
d -sfid-1z ffi	8<=	; 8 9B:	: 79<9 >7<
W ≤Wsys6Y <1 Mfi fi v tz ffi	897<	8; 88: =	997; ; >8 =>7
Wsys6Mfi fi v tz ffi	>99	<8 788	8: B >99 >77
Rsv -69flu	:	>7	; 7B A97
Y x 6p fi	89 F: B	8 B7: D: D	9: DA EBC CDB

d fltw6d≤ tvC aM V V sfW6 fivs≤aM V e- s≤sv-Lsts≤yes s≤ fievysz 6aNKWW rffr ffr flu aNKW ez r flru zē r fl ffi  
 evflxry L r flty

$\frac{m}{jwx -}$  F77

U i 5o 5 g R f  
 URf d m m 5  
 B9AH B9BA  
 d x- R - 4l -4w z l w - S mw-  
 S x -z x fSPc jw w j- w h- - y 4A89G  
 A8A9

$\frac{jx}{u fi}$	$\frac{Y}{j}$	$\frac{x}{fi}$	$\frac{f..x}{W}$	$x$	$\frac{l}{r}$	$\dots$	$\frac{d x}{rfi}$	$\frac{h}{0}$
/80			/90		/: 0		/: 0	
978A			89 >B;		8 9B: 8>8		=B<7 B: 8: 97	
978B			8: <8:		8 <77 =89		>==; : A: ; 7	
9797			89 <A<		; 8A>>9A		A8=>; =>78B	
9798			89 B: 8		8; BA 7A=		9: A: =>7A=<	

d fltw6d≤ tvC aM V V sfN6 fivs≤aM V e- s≤sv-Lsts>y es s≤ fievysz 6aNKWW rffr ffrflu aNKW ez r flruzer r fl ffr  
 evflxy L r flty



F7B

Unl nkb  
XSkijho

m c n 8 m d f  
j vx - F7B d e n d m m 5  
B9AF  
d x- T vx - w z m - x Xz w  
Rw- jw w j- w h- - y 4A89E

ax ... bx x x k x x e fi Wf	k x x... x xx a fff / 6 0	j...x xa...x s / x 6 0
/80	/90	/:0
K3MNSaw sfl ts<ys<3Nswy-3aweywfi ffs<J -vs<Uff tsz	8>7	B7;
L5Rv -awey fzs<SWrfl wt zlx	9<A	=A8;
QT ≤ ±6Mfi t zfi	89B	8;=7
P5awvsys<ys<Kws vs<Nwvs<Cw s s -vs<aws s s< V t-fvs<dw wvs V 6 h y<ffirfflu cv rzff ruv2cv rz swW<≤ gvyzffirflu W<≤t tff	89<8;	8>7=A
Q5awesys± s<vs<awy vs<ys<erfl ≤ r zffirflu d<rxv	8<A>	98>>
R5awes wv<ss<± fl vs -M<awes wv<ss<V s<≤V <fl 6 Ktt<fi fi sur zffirflu P<su dv ztv Kt z z z v	<>8	A<<A
S5Rex fl s -M<≤T fl ≤± 6ffirffir zffirflu Mfi fi flzr zfi	<<A	>89
T5J ±--s Tw s<ys<M<≤J s< 6Pzffirffirflu fl r fltv Kt z z z v	BB	A<7
U5cv6fiN s 6cvrffid r v Kt z z z v	;97	;=
V 3M5S s aw szss<6Mfi rfi dv ztv	9=8	>7
a5awesv<±<6Ou tr zfi	>8	B<9
b5J ±--s Tw wvs s<V s<± M<≤J ±--s d sffirffirflu Rvrffirflu d<zrffm ≤ffKt z z z v	::>>	8=8<
c3f 5Ss s U<≤s6Z yv dv ztv	=8	A=
<b>Y x 6p fi</b>	<b>9B EAC</b>	<b>B8 DCD</b>

d fl t w6d< tvC Qs fawesxs s<f szs6aw szss<dwes Nt<≤ fl -978=6cv ffi<0 rsffiyfi vfi Vz zlx swQ<zfi z Mfi 867=

$\frac{m}{jwx -}$  FBZB

cn 8 m d f  
 l n d m m 5B9AF  
 dx- T wx - wz m - x Q - iyw-  
 jw w j- w h- - y 4A89E

$\frac{i \ x \ k \ x \ x}{V \ o \ f \ i}$	$\frac{k \ x \ x \ f \dots \ x \ x \ x}{a \ f \ f \ i}$	$\frac{j \dots x \ x \ a \dots x}{s}$
/80	/90	/:0
V ± Wz ≤	9; :8A	: AA>
Twu-fi dfi r fff	8; :8	>=98
V wswsyz Wwuz fi	8; A	9 >A:
Kws Vr xv	B	9; B7
<b>Y x q n</b>	<b>9B EAC</b>	<b>B8 DCB</b>

d fl t w d ≤ tvC Qs fawvsxs s ≤ f szs6aw szss ≤ dws Nt ≤ fl -978 = 6cv ffi ≤ 10 rs ffi yi vl Vz d l x s u d r i s i z l w l 867 =

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m  
jwx - FBZ

S n g f l S  
n d m m 5B9AF  
d x- T wx - x j - Q - T  
jw w j- w h- - y 0 14A89E

o fi p	Vfi fi q fi fi V a	k x x... x xx a fi fi
	/80	/90
ae6ae aw w 6aw fi Ofi v z v5a sfi M≤ ≤r zfi5a sfi Vfi zvu M≤ ≤r zfi		B:
Lg Vfi zvu Vrszfi ar flv yz		B8
O-fi s Pz fi		9
T ws -V≤ ≤ aw≤ -≤ M≤ ≤ v r z v5avfi zfi P flu		≠
js s s≤ P≤ flur zfi		89B
R≤Tz d vtz fiv fi z slzvf v		8: <
aw s±s≤aw szss≤Uvfi tsys J ≤y d s zur ≤ cv v vfi r z v ≤P≤vzfi Mfi rfi 5 Z xrfiz r zfi		;
e-vs±Kwtsvs≤f szs f flzfi ≤ ≤r vu		9; 7B8
<b>Y x q fi</b>		<b>9B EA:</b>

d fl tw6d≤ tvC Qs fiawsvsxs s≤f szs6aw szss≤dvs N± ≤ fl -978-6cv ffi≤d rsfiyfi vfi lz zix ≤vQz≤fi zfi zfi 867=

$\frac{m}{j_{wx} - FBD}$

d i b g b d  
 m m d S c 8 U  
 d m m 5B9B9 B9BA  
 by- -w z d by- y-h- w Py -  
 Yw w S-y- x- jw w j- w h- - y 4A8A8 w z  
 A8A9

Ox-x V h f a	jx	fi
	9797	9798
/80	/90	/:0
es s Mx s P vs y g h r vy s v cvxz r z f l M z tr v	:	4
d s R s f s z s aw v s y s y s s d f f a G e r u v L z f v V z v f l v	8;7	4
es s Mx s aw sz s s e M a G S M f r f l cvxz r z f l M z tr v	8;7	4
R s V w s w s s K s y s s s / R K O G L z f v f l v	>>B	B8;
R s P s y s s s R z f v Z u s f f r f l z v	4	4
R s e s w e f c s v V z v f l v	4	4
R s J w e f a y r f i r t V z v f l v	4	;
d s R s f s z s J s y s s d f f J O e r f l s L z f v V z v f l v	:	4
R s f s z s S s T s s s s f f S T O S M e f t z f l d v z v L z f v V z v f l v	87	4
R s e s Y t s G V x d s v V z v f l v	8:	87
R s P s U y K w t v s T y g d s a z v u V a Q V z v f l v	89	99
R s a w w s s a s s s a z f t z f i K s r f f V z v f l v	4	4
R s Y w s s f i d V a G f l z s R x y d t y s s f f v r z f l r f f V z v f l v	;	;
R s c w e f f l w K u v z z f l x V z v f l v	A	<
es s Mx s R s v f e M R O S f l u cvxz r z f l M z tr v	;	;
R s U s y s y s s O f l z z f l f v f l r f f V z v f l v	>	;
R s a w s f l s s s U f l t s z K: G R r r u s h r v d s r x v V z v f l v	8	:
R s a w f l t s y s s J - U f l t s z / R u U O h r v r v e v r f i v f l a f f f l	8	4
R s T f i s s s M a z V z v f l v	;	;
R s Y w s s f i a w s v s s s s s f s M s s / a l f N O E O r f f i M y z f i y s s u O u t r z f l a s r f i V z v f l v	::	::
R s f s z s d f l s s a s s f l G d r z f l x V s r f l L z f v V z v f l v	4	8
es s a w s u s s s f s z s a w s s s s P z y L z f v V z v f l v	9	=
R s a s s s K v s s W a z u z w a r t z v V z v f l v	>A	>>

Vn" w@n" anor ySM- " ff' ff' q anoy <B4

0x-x V h fi a	jx ω fi	
	9797	9798
/80	/90	/: 0
R ≤ Tw.s.K-vs ≤ Wzu zw h ≤ ffav fiz	; A	8;
R ≤ Tw.s.O- ws -Gay zsyvr z h ≤ ffav fiz	;	8
R ≤ a fl -Twws s ≤ Rvrfy a sfi ≤ zsi Vzvfi v	4	4
K ± a-wes s s ≤ Ts sfiaw- s ≤ sPz yzix gv vfi vxz r zsi	8: ;	8B
R ≤ e ± f szs V vw ≤ Wsuw fl L zlv d ≤ v Vzvfi v	4	4
R ≤ a s ± ± ewesys ewt ≤ - Tw s fl s -s Kayr fir tv z r ffivtyfi z x fi a r t z v Vzvfi v	9=	8<
R ≤ J z fi Twws s ≤ V s s s ± Ga s fi Rvrfy O v Vzvfi v	4	4
R ≤ Wfi tsys T vs ≤ avfs z s ≤ Gv vr flu e r z i z x fi z v Vzvfi v	4	4
R ≤ Tw.s.aws fiz Twws s ≤ Rvrfy M s fl vff h ≤ ffav fiz	4	4
R ≤ a s ± ± M ± w Qw s ≤ Kfi z i r fi n s t ≤ - Vzvfi v	4	8
R ≤ a s ± ± M ± w Gv s t ≤ - Vzvfi v	A=	A8
R ≤ Y ws -s fiaw s v ± s ≤ Wfi tsys T vs ≤ avfs z s ≤ O u tr z si Z v r z si r fi z v fi v v s M s vr flu e r z i z x fi z z z si	4	4
R ≤ Y ws -s fi Wfi tsys awfs z s ≤ Tw.s.G s e r z i z x fi z v Z v r z si r fi z v fi v	4	4
R ≤ Wfi tsys aw s v ± s ≤ vs ≤ avfs z s ≤ O u tr z si r flu e r z i z x fi z z z si Vzvfi v	4	4
R ≤ a s ± ± aw s s Gv v a r t z v Vzvfi v	8A	87
R ≤ Tw.s.aws s Gv v h ≤ ffav fiz	B	: <
R ≤ a s Twy s s ≤ Kwfs .s. V s s s ± Gv s fi fi z W r fi z i x K t z z M fi v Vzvfi v	4	4
R ≤ a s ± ± J v w w a y r fi r t z a r t z v Vzvfi v	:	87
dw -s aw s fi z s ≤ Tw fl s s ≤ s a s s y s ≤ s u d r w M s fl v ff h M z tr v	:	B
R ≤ aw ≤ s ≤ awes y s s s e s s z Gv r flu f v Vzvfi v	8<	8<



Vn" w@n" anor y5M- " ff' ff q anoy <B4

0x-x V h f i a	jx ω fi	
	9797	9798
/80	/90	/: 0
R≤Tw.s.csv-y swwcruzsr r yv h ≤ffav fiz	4	4
R≤f szs awwnt s≤saffil r zfi L zlv Vzvf v	9	4
R≤a s±±J sfi-Twvs s≤Rvrffy Kfir ffi Vzvf v	>	9
R≤Y ws -sfi sfl s≤Ts s≤Ts s≤Uzfluv xr vfiZ vr zfir ffi Vzvf v	=	;
es≤s Mxsf szs as -s s6e≤ zfi L zlv cvxz r zfi Mz tr v	4	B
R≤Tw.s.ewsys ds≤s -s sdrfizr xfi h ≤ffav fiz	8	8
R≤Tw.s.J sfi-Twvs s≤Rvrffy Kfir ffi h ≤ffav fiz	4	8
es≤s Mxsf szs K v-vs s6Mfz r zfi L zlv cvxz r zfi Mz tr v	8	4
R≤Y ws -sfia zvl s Rvrffy Mfi v Z vr zfir fivzvf v	4	9
R≤Y ws -s fidw± fiz Ms s 60ffi vfi r dty≤ffz vr zfir fivzvf v	;	;
R≤Tw.s.cvx±-s-Y -wscvwt zfi z h ≤ffav fiz	9	8
R≤Tw.s.awv sfl V w-6Wvuzr fiv vtfff h ≤ffav fiz	8	4
es≤s Mxsf szs awfi t v-vs s≤Rvs ≤/eNf a R6Pz y Pr fi zfi L zlv cvxz r zfi Mz tr v	9	4
R≤f szs aww s±s s6z v sffL zlv Vzvf v	;	8
d s R≤a s±±awes s J s w-6Kfiv yv z art zlv Vzvf v	8	4
R≤Us±Q y-ws6R xzfi v Ofz s zfi Vzvf v	9	4
R≤awfi t s s≤Ts s Lst s y6 r fity Z tvZ vfi zfi Vzvf v	8	4
d s Twvs s y s≤awvfi-s s6v vr ty Mz tr v	8	B
<b>Y x q fi</b>	<b>8 C: :</b>	<b>8 : : B</b>

d fitw6d≤ tvD M≤s awes sfl s≤V vsfvs≤awf s s≤saw--s≤sew sv ds a≤ Tst s wses s≤ fiewysyz 697 vx r vu Vzvf zfi K rz Z tv s er rfi zfi vfi xry cvxvfi

m  
j w x - F B E

c d b d f f d 5  
B9BA  
T w x - i w w z c -z X z x i x z y  
w z R w - X z j w w j - w h - - y 4A8A9

a. z x x x o fl	ax ... W- G/Wi e	W- T x W d T x Y x b fi e j b fi e p fi	/80	/90	/:0	/:0
a-s-y -		4			898	898
Ksv-		4			87<	87<
d-t-st-s-y ≤		4			9=	9A
U fl		9			98	98
d -st-s-y ≤		4			8:	8:
as-s-s≤		4			=89	=89
e ±s		4			B9	B9
ds v ±		9;			998	9;<
es -s≤Wb fi		9			B>	BB
d-sz -		4			9B	9B
T fi-s-y		4			B;	B;
d -sfl		4			89:	89:
d -sfl Ks s		4			99	99
as s t e t-s-y		4			<	<
Ks		4			8>B	8>B
d Psv -s-y		4			⇒	⇒
J-s-fl Mw -		4			⇒	⇒
Ks f s s		4			>>	>>
V s-s-y sfl s		4			9B	9B
d-s-s-y -s-y		9			9:>	9:B
j x x j ... x		:7			99DD	9:7D

d fl tw d ≤ tv d M s aw -s-y -s≤vs≤awvsys≤s≤Tst s wses s≤ fwevsyz 69flu rflu r uvZ tv -ver rfl fzevfixry  
cvxvft

m  
j w x - F B F

c i 8n b i f  
l i d d m  
m 5B9BA  
T w x - c w wy X z x R w -  
X z w z i x z y j w w j - w h - - y 4A8A9

a. z x x x o f i	ax ... W- G/fi	e	Y x p fi
/80	/90	/:0	/:0
a s s y -	4	898	898
Ksv -	4	87<	87B
d t s t s s y ≤	9	9=	9E
U fl	4	98	98
d s t s s y ≤	4	8:	8:
as s s s ≤	4	=89	C89
e ± s	4	B9	F9
ds v ±	9;	998	9AB
es s s w b fi	9	B>	FF
d s z -	4	9B	9F
T f s y	4	B;	FA
d s fl	4	89:	89:
d s fl Ks s	4	99	99
as s t e t s y	4	<7	B7
Ks	4	8>B	8DF
d Psv s y	4	⇒	C9
J s s fl Mw -	4	⇒	CD
Ks f s s	4	>>	DD
V s s s fl s	4	9B	9F
d s s y s y	9	9: >	9: F
j x x j ... x	:7	9 9DD	9:7D

d fl t w b ≤ t v d M s a w s y s s v s ≤ a w v s y s y s ≤ t s s w s e s s ≤ f r e v e s y z 6 9 l u r f l u e r u v z t v s e r r f l f r e v l i x r y c v x v l t



m  
jwx - FBZG

c m d i i 8n b  
i f l i d  
d m m 5B9BA  
T --w c w wy Xz x Rw -  
Xz w z i xz y jw w j- w h- - y 4A8A9

a.zx x x o fl	ax ... W- G/W	e	Y x p fi
/80	/90	/:0	/:0
a-sy -	4	99>	99D
Ksv-	4	89<	89B
d-tsts ≤	997	87A	:9E
U fl	4	⇒	C7
d ts ≤	4	<9	B9
as ≤ s ≤	4	9; : >	9 A: D
e ±s	4	9⇒	9C7
ds v ±	9B>9	⇒:	: C8B
es -s ≤ Wb fi	877	8>A	9DE
d-sz -	4	A<	EB
T fs	4	8; >	8AD
d ts fl	4	8>9	8D9
d ts fl Ks s	4	>	D:
as s t e t	4	≠	DC
Ks	4	>7=	D7C
d Psv	4	8A=	8EC
J s fl Mw -	4	89;	89A
Ks f s s	4	9: 8	9: 8
V s s fl s	4	889	889
d-s	; BA	⇒7	8 8DE
<b>jx x j... x</b>	<b>: DF7</b>	<b>C CE9</b>	<b>87 AD9</b>

d fl tw ≤ tvd M s aw s s s v s ≤ aw v s s s ≤ T s s w s s s ≤ f r e v s z 6 9 l u r f l u e r u v Z t v s e r r f l f r e v l x y c v x v l t

m  
jvx - FBZH

c i 8n m d f  
c n d d m  
m 5B9BA  
d x- T vx - w z T --x Xz w z  
i xz y jw w j- w h- - y 4A8A9

a.zx xx o fl	f... xxx 6 kxx a ffl	j...x xa...x a / x 6 0	f...y xx h V f i f i e	f... xxx 6 kxx a	j...x xa...x a / x 6 0
/80	/90	/:0	/:0	/:0	/:0
a<=y -	<	87	8	8<	8<
Ksv—	87	97	4	4	4
d+sts y ≤	4	4	4	4	4
U fl	4	4	4	4	4
d ±sts y ≤	4	4	4	4	4
as≤s≤	87<	98A	8;	898	898
e ±±	<	87	4	4	4
ds v±	8>	;	4	4	4
es -s≤V6 fi	8<	:9	4	4	4
d-sz -	A	8=	4	4	4
T fi y	97	;7	4	4	4
d ±fl	98	;9	8	9	9
d ±fl Ks s	8>	: =	8	9	9
as s t e t y	;	A	4	4	4
Ks	<	87=	4	4	4
d Psv y	>	8;	4	4	4
J ≤sfl Mw -	89	9;	4	4	4
Ks f s s	87	97	4	4	4
V s ≤ sfl s	87	97	4	4	4
d-s y	4	4	8	=	=
<b>jx x j... x</b>	<b>:8F</b>	<b>CB7</b>	<b>8E</b>	<b>8AC</b>	<b>8AC</b>

Vn" w@n" anor y5M- " ff' ffr q anoy <84

a.zx xx o fl	f...y xx jx pfi i fi e		f... x fx- b i e	
	f... x xx 6 k x x a ffl	j...x xa...x a / x 6 0	f... x xx 6 k x x a ffl	j...x xa...x a / x 6 0
/80	/=0	/>0	/A0	/B0
a<=y -	88	=9	55	55
Ksv—	9	8	55	55
d+sts y ≤	4	4	55	55
U fl	4	4	55	55
d +sts y ≤	4	4	55	55
as≤s≤	4	4	55	55
e ±±	9	88	55	55
ds v±	4	4	55	55
es -s≤Vb fi	4	4	55	55
d-sz -	4	4	55	55
T fi y	4	4	55	55
d ±fl	4	4	55	55
d ±fl Ks s	4	4	55	55
as s t e t y	4	4	55	55
Ks	4	4	55	55
d Psv y	4	4	55	55
J y sfl Mw -	4	4	55	55
Ks f s s	4	4	55	55
V s y sfl s	4	4	55	55
d-s y y	9>	8;<	55	55
<b>j x x j... x</b>	<b>A9</b>	<b>99D</b>	<b>55</b>	<b>55</b>

Vn" w@n" anor yM- " ff' ffr q anoy <BA

a.zx xx o fl	f... c	x a 0 y W l	a x fx x s l	
	f... x xx 6 k x x a ffl	j...x xa...x a / x 6 0	f... x xx 6 k x x a ffl	j...x xa...x a / x 6 0
/80	/870	/880	/890	/8: 0
a-sy -	4	4	9	=
Ksv—	4	4	4	4
d-tsts-y ≤	4	4	4	4
U fl	4	4	4	4
d -ts-y ≤	4	4	4	4
as-s≤s	8	<	=	: 7
e ±s	4	4	4	4
ds v±	4	4	9	97
es -s≤Wb ft	4	4	4	4
d-sz -	4	4	4	4
T fs-y	4	4	4	4
d -sfl	4	4	4	4
d -sfl Ks s	4	4	4	4
as s t e t-y	4	4	4	4
Ks	8	87	4	4
d Psv -y	4	4	4	4
J -sfl Mw -	4	4	4	4
Ks f s s	4	4	4	4
V s-y sfl s	4	4	4	4
d-s-y -y	4	4	4	4
<b>j x x j... x</b>	<b>9</b>	<b>8B</b>	<b>87</b>	<b>BC</b>

Vn" w@n" anor y5M- " ff' ffr q anoy <84

a.zx xx o fl	fx -x 0... V fi		j x c x c	
	f... x xx 6 k x x a ffl	j...x xa...x a / x 6 0	f... x xx 6 k x x a ffl	j...x xa...x a / x 6 0
/80	/8; 0	/8<0	/8=0	/8>0
a-sy -	4	4	4	4
Ksv—	<	8<	4	4
d+sts ≤	4	4	4	4
U fl	4	4	4	4
d +sts ≤	4	4	4	4
as ≤s ≤	8	:	4	4
e ±s	4	4	4	4
ds v±	4	4	4	4
es -s ≤Wb fi	4	4	4	4
d-sz -	4	4	4	4
T fsy	9B	87=	4	4
d ±fl	<	A	4	4
d ±fl Ks s	4	4	4	4
as s ± e t sy	4	4	4	4
Ks	4	4	4	4
d Psv sy	4	4	4	4
J ±sfl Mw -	4	4	4	4
Ks f s s	4	4	4	4
V s ± sfl s	4	4	4	4
d-s ± sy	4	4	4	4
<b>j x x j... x</b>	<b>A7</b>	<b>8: 9</b>	<b>4</b>	<b>4</b>

Vn" w@n" anor yM- " ff' ffr q anoy <BA

a.zx xx o fl	f...y xx 0x 0x x V i fi e	j x U Y fi p fi
f... xx 6 k x x a ffl	j...x xa...x a / x 6 0	f... xx 6 k x x a ffl
/80	/8A0	/8B0
a-sy -	4	4
Ksv—	4	4
d-tsts ≤	4	4
U fl	4	4
d -ts ≤	4	4
as ≤s ≤	8	<
e ±s	4	4
ds v ±	9	9<
es -s ≤Vb fi	4	4
d-sz -	4	4
T fi sy	4	4
d ±fl	4	4
d ±fl Ks s	4	4
as s † e t sy	4	4
Ks	4	4
d Psv sy	4	4
J ±sfl Mw -	4	4
Ks f s s	4	4
V s ± sfl s	4	4
d-s ± sy	4	4
<b>j x x j... x</b>	<b>:</b>	<b>:7</b>

Vn" w@n" anor y5M- " ff' ffr q anoy <8A

a.zx x x o fl	0... ..i...=x V n fi o		0... ..i...=x i o	
	f... x xx 6 k x x a ffl	j...x xa...x a / x 6 0	f... x xx 6 k x x a ffl	j...x xa...x a / x 6 0
/80	/990	/9: 0	/9: 0	/9<0
a-sy -	9	9	87	97
Ksv-	4	4	87	97
d+sts ≤	4	4	4	4
U fl	4	4	4	4
d +sts ≤	4	4	4	4
as ≤s ≤	;7	;7	<8	87<
e ±s	4	4	4	4
ds v ±	97	97	<7	8<7
es -s ≤Vb ft	<	<	<	87
d-sz -	8	8	4	4
T fsy	9	9	:	=
d ±fl	4	4	<	87
d ±fl Ks s	4	4	<	87
as s ± e t sy	4	4	8	;
Ks	9	9	87	97
d Psv sy	4	4	4	4
J ±sfl Mw -	4	4	4	4
Ks f s s	4	4	4	4
V s sy sfl s	<	<	;	A
d-sy sy	4	4	4	4
<b>j x x j... x</b>	<b>DD</b>	<b>DD</b>	<b>8BA</b>	<b>:C:</b>



Vn" w@n" anor y5M- " ff' ffr q anoy <8A

a.zx xx o fl	k x x T z		Y x	
	l	V	p	fi
	f... x xx 6	j...x xa...x	f... x xx 6	j...x xa...x
	k x x	a / x 6	k x x	a / x 6
	a ffl	0	a ffl	0
	/80	/9=0	/9A0	/9B0
a≤s y -	9	9	::	88D
Ksv—	8	8	9E	CB
d±sts y ≤	8	8	8	8
U fl	4	4	4	4
d ±sts y ≤	4	4	4	4
as≤s s	<7	877	9D9	C::
e ±±	8	8	E	99
ds v±	8<	:7	87C	9DF
es -s≤V6 fi	9	9	9D	AF
d-sz -	8	8	87	8E
T f±y	<	<	BF	8BF
d ±fl	<	<	:D	CD
d ±fl Ks s	9	9	9B	B7
as s ± e t y	4	4	B	89
Ks	<	<	D8	8A:
d Psv y	8	8	E	8B
J ±sfl Mw -	8	8	8:	9B
Ks f s s	8	8	88	98
V s± sfl s	:	:	99	: C
d-s± y	9	9	:7	8B:
j x x j... x	FE	8C:	DCC	8 ECB

d fl t w6d s tvD M±s aw±y ±svs±awvsys±Tst s w6es s± fweysz 63lu r fl u e ru v Z tv ±ver r fl f±evflxy cvxvff



m  
jwx - F7B7

c i 8n S S n  
Rf UR e5nde8ni e5 l i i e5B9BA  
T wx - R w 7Q - c w z w P z w w z  
kab7kfbQ - T 4A8A9

$0x-k x x$ V a	$mx y N$ i f i f i	$-x GRsbV$ U f i	kabkfbRfbV	iffb
/80	/90	/:0	/:0	
aLef	8	4	4	4
aVek	9	8	4	4
aLefl Q	4	9	4	4
daKf	4	<	4	4
daKN	4	8	4	4
M- t KKV	4	8	4	4
Lr tyxl fffl	4	:	4	4
aUW	4	8	4	4
aMl V	4	8	8	8
aw sy -s ≤ j -V ≤ fl	4	8	8	8
c fl sz ds ±-	8	4	4	4
T fi ≤ ±	4	8	=	
aw fl sz s ≤	4	4	98	
Tdf	4	4	=	
Ss fs ≤	4	A	87	
Ps fs ≤ L	4	4	4	4
JaV d	4	4	9	
ast ±N vs ≤ t s fi ≤ rxv	4	<	4	4
eaR	8	4	4	4
ast ± w sy ± s ≤	4	;	4	4
M s f f f f f l vs ≤ y f i v r f f i	4	;	4	4
K yr f f i W z z l x a f f i l vs ≤ d s l v	4	=	4	4
M y v				
aw s f l sy s r y u z ≤ r f f i ≤ s f i	8	4	4	4
r y vs ≤ r y				
Twt ≤ Ts w	4	4	8	
ast ± Ts w	4	8		

Vn" w@n" anor yM- " ff' ffr q anoy <84

Ox-x k x x V a	mx y N i fi fi	-x GRsbV U fi	kabkfbRfbV	iffb
/80	/90	/:0	/:0	
Twt ≤Twfs s ds -	4	<	87	
ast ±Twfs s ds -	4	9		
ast ±Twfs s ds -vs≤Twt ≤ Twfs s ds -	9	4	4	
awey fszs≤Ts	4	8	=	
awz wfs≤	4	8	>	
awft zs≤	4	9	4	
awy vs≤ys≤	4	9	<	
as s cs±s	4	4	=	
awtweswfs≤	4	4	8	
h s ≤y 6 flsz fl s±s≤	4	4	>	
Ts s ±w6 vfl s z± s≤	4	4	8	
c ±	4	4	<	
V ≤fl s ±w	4	4	8	
f szs flsz s≤yys	4	4	87	
ls ≤	4	4	9	
awvysyys≤a ±	4	4	8	
e ±s y y-	4	4	8	
ds≤yys wesfl	4	4	8	
d s6ews -	4	4	8	
Ss s c wffs fl w	4	4	8	
J wt±	4	4	9	
e w wv± fl ≤±s -	4	4	>	
esfl ts± vs≤y	4	4	:	
f szs flsz s≤yys	4	4	4	
f szs .sfit wft s s≤y twes	4	4	4	

d fl tw6ds tvC M-s U±± s y s≤Qv Tst s wes s≤ fiwesysz60fl z sflfi vfl Z tv sver rfl ffevflxy cvxvft



**BAB**  
Chapter

**07**

# PARIWISATA

*Tourism*

<https://tapanulitengahkab.bps.go.id>



<https://tapanulitengahkab.bps.go.id>

**i VgCvERl Rg mVdgb**

**j TRWdXPbde j Ti**

74 U-°r• qn° qrsʋ v̄v • n.v. v̄nᵀ  
 z r° t w @ .rx-z r° qn° v  
 b° v̄f q Xnff-° d-.yq a-ffiv̄z  
 Y.t.n° v nff-° /bXd aYᵀ

85 aur p-° pr• ff n° q qrsʋ v̄f-°  
 -s ff-ffiv̄z .rsr.°. ff f̄ur  
 .rp-z z r° qnff-° -s f̄ur  
 b° v̄f q Xnff-° d-.yq a-ffiv̄z  
 Y.t.n° v nff-° /bXd aYᵀ

84 d v̄nᵀ n° z n° pn° rt.n.n  
 . v̄z n° / vnyu °rᵀ -n° t  
 n° t z r y n x x n° • r.wyn° n°  
 xr ° nᵀ " rt.n.n qv y n...° rt.n.n  
 @z • nᵀ @ v̄ t t n y n 2 x .n° t qn.v.  
 ° nᵀ @ u " 2 q v q -...° t -y u ° nᵀ  
 © w n° @ z n .ov° v̄ 2 or.yo .2.  
 nᵀ © w n° • .w n q v n v̄ " n / 2 r y n v̄  
 " © x or x r .w q r " t n° • r " q q x  
 " r t n . n n° t q w " w " t v  
 M r s v̄ v̄ w v̄ z r " p n x • q n x n @ t - . v .  
 @ z z n° p n° r t n . n 2 nᵀ C  
 n 4 d v̄ nᵀ n° . © . y / v n y u ° r ᵀ .  
 • r " t " w " t ° r . r . @ q r s v̄ v̄ v q v  
 nᵀ n° t @ v̄ t t n y . n y t ° r q v v̄ 8:  
 w z 2 h x n° @ v̄ q n x y o w q n . v 7 8  
 o y n° q v @ z • nᵀ n° t q w " w " t v  
 q r " t n° z n x ° q n° n . n y n v̄ C  
 [ r . : - ° n y C or . y o . 2 . r x . r n ° v̄  
 z r " t " w " t v @ z n° nᵀ  
 x r y n . t . n 2 o r y n w . . nᵀ • r y n @ u n° 2  
 x r ° r u nᵀ 2 - y n u . n t n 2 x r t n z n n° 2  
 o r y n° w 2 @ n° ° v̄ q n° y n v̄ 3 n v̄ 4  
 K v̄ v̄ q n° • . : - s r ° v " n y C  
 z r " t u n q v . v . • r . @ z n° 2  
 x - " s r . r . ° v nᵀ x - " t . r . : 2  
 • n z r . n° q n t n° t 2 x - " ° r . . .  
 • r . @ " w x n° 2 q n° y n v̄ 3 n v̄ 4  
 o 4 [ r y n p - " t v n y u ° r ᵀ .  
 • r " t " w " t ° r . r . @ q r s v̄ v̄ v q v  
 nᵀ n° t @ v̄ t t n y x . n° t q n . v 8:  
 w z q v @ z • nᵀ n° t q w " w " t v

95 K° S° ff . . n ff - ° n y c v̄ v̄ f . . . v̄ n°  
 • r . : - ° f f i x v̄ t n f f v̄ ff n z n v̄  
 q r ° f f n ff - ° - f f f f v̄ q r u v̄ ū r . . f f f f n y  
 r " v . : - ° z r " f B s . . y ° f f u n " n r n . 3  
 s . . . n° z n v̄ • f f i . : - ° r / o f f v̄ r ° 3  
 y v̄ f f i r . . . - . f f i r . . : r . : - ° n y • f f i . : - ° r 0  
 - f f i r . . f f u n " ff or r z • y - r q o n  
 . r . : q r " f f " f f f f v̄ f f i r p - f f i f f . . v̄ v̄ f q 5  
 a u v̄ q r s v̄ v̄ f - ° p - r . : . 9 / f f - 0  
 p n f f t - . v . - s s . r x t " v̄ v̄ f . : 3 n z r y D  
 n 5 a - f f i v̄ . f f v̄ n° v̄ v̄ f . . n p p - . q v̄ t  
 ff f f i r q r s v̄ v̄ f - ° n o - r 3 ° f f v̄ t n f f  
 y n ° f f 9 ; u - f f i : 3 o f f f f - f f z - . r . f f u n " 89 / f f r y r 0 z - " f f i : 3 v̄ f f i r • y n p r  
 v̄ v̄ f q 3 v̄ f i f f i r v̄ f f i f f - ° s v̄ v̄ f t 3  
 n z - " t - f f i r . : s . . f f i r • f f i . : - ° r - s D  
 [ r . : - ° n y D • y n ° f f i r 3 . r p . r n f f - ° 3  
 v̄ v̄ f t s . v . " q ° n° q . r y n f f i r r 3  
 ° f f f q n° q f f n v̄ v̄ t 3 u r n y f i n° q  
 z r q p n y p n . r 3 ° - . f f 3 . r y t v - ° 6  
 • y t . v̄ n t r r 3 ° u - • v̄ t 3 f f n . ° v̄ B r f f 5  
 L f f i v̄ r ° ° n° q • . : - s r ° v - ° n y D  
 n f f f " q v̄ t z r r f f t 3 p - " s r . r . " p r °  
 - . . . p - " t . r . : ° r 3 f f n q r s n v̄ . . n° q  
 r u o v̄ v̄ f - ° 3 p - " p r . f f 3 ° u - ° 3 r f f 5  
 o 5 O p f f i : v - ° v̄ f f v̄ n° v̄ v̄ f . . .  
 n p p - . q v̄ t ff f f i r q r s v̄ v̄ f - ° n o - r 3  
 ° f f v̄ t y ° f f u n " 9 ; u - f f i . : v̄ f f i r  
 • y n p r v̄ v̄ f q / v̄ p y f f q v̄ t p . f f i r  
 • n ° r " t r . : 3 v̄ 5 n " v̄ v̄ f . . n . v . v̄ t  
 v̄ n p - f f i f f . . o ° u v̄ - . . f f n v̄ 3 " - f f  
 ° f f v̄ t v̄ n° n p p - z z - q n f f - °

.@.z. n° x p.ffi/r • n°r"tr.:3 n©  
 °r@n• • r"t "w"t n"t @on qv  
 ° n© "rt.n.n qr"tn" xn• nyn@  
 xr.r.@ n• vqzv n"n z r.rxn @qnx  
 z r"tv n• qv nx-z -qn°v n"t  
 @.:rqvn qv "rt.n.n @.:ro @4

n nynyoy v fur p-ffi ff.05

94 \_n@3.n@ ynz n @ttny nqnyu :5  
 .n@3.n@ nx© @ttny v n n"  
 z n"pn"rt.n.n qv S'q-"r°vn  
 "©x °n© xnyw x "w"tn"4

K r.ntr y"tffu -s °ffi v fur  
 n r.ntr °ffi qffiffi-" -s s-.rx" "  
 vff...v S'q-"r°vn s-...-r ffv.5

: 4 b°nun • r" rqvn" nx-z -qn°v ;5  
 nqnyu °nun n"t z r" rqvxn"  
 • ry n"n" • r"tv n• n"  
 n"t qn• n© qy"txn• v  
 qr"tn" • ry n"n" • n.v. v n@  
 yv" n4 b°nun • r" rqvn"  
 nx-z -qn°v qn• n© or... n u-@y2  
 v n2 • -"q-x v n@2 o z v  
 • r.xrz nun"2 • r.:v t t nun"  
 xn.n n"2 qn" nx-z -qn°v  
 yv" n n"t qv "nxn"  
 "©x ©wn" • n.v. v n@4

aur offv r°° -s •.: vqvt  
 npp-z z -qnfir-" v n offv r°°  
 ffinff •.: vq° °. r pnyff °r...xpr°  
 ffinff pn" or r"ffv• r q vfu -fur...  
 ff-ffi v z °r...xpr° S'f v pyffq° u-ff y3  
 v n3 p-ffit r3 pnz • v t3 pn.n n"  
 °ff• 3 n"q -fur...npp-z z -qnfir-"  
 ffinffn.r.ffi r q s-..ff-ffi v z • ffi: -°r°5

; 4 R-@y nqnyu • r" rqvn" <5  
 nx-z -qn°v r pn.n un.v" or... n  
 xnz n.3nz n... qv qnyz °n©  
 on"t "n" n"t qn• n© qy"txn• v  
 qr"tn" v n • ry n"n" z nxn"  
 qn" z v z 2 xrt v n@ uo .n"  
 qn" n@ sn°v n° yv" n4 R-@y  
 @.qv. qn.v. u-@y or .av @n"t  
 qn" u-@y " -" 3v @n"t 4

R-ffy v n qny °ffi • y -s  
 npp-z z -qnfir-" .:-z ° vfu v n  
 offv qvt uvp pn" or r"ffv• r q  
 vfu r nffv"t n"q q.v. xv"t °r...xpr°3  
 r"ff.ffi v z r"ff n pffv v r° n"q6-...  
 -fur...snpyffir°5 R-ffyp-" °vff -s n  
 pyn° sv r q u-ff yn" qn" -" 4 ffi. u-ff y5

<4 R-@y o v @n"t nqnyu °nun =>5  
 • r" rqvn" v n • ry n"n"  
 • r"tv n• n" 2z nxn" z v z °r.@  
 v n yv" n ont v z z qr"tn"  
 z r"tt "nxn" °r ont vn" n@

K pyn° sv r q u-ff y v fur offv r°°  
 -s •.: vqvt n" npp-z z -qnfir-" 3  
 r nffv"t n"q q.v. xv"t n° r y n° -fur...  
 °r...xpr° s-..fur • ffopy o fffv"t n  
 offv qvt -..n • n. ff -s n offv qvt 5

°ry...u on"t "n"4 b°nun v v  
 qvxy-yn °rpn.n x-z r.:ny °r. @  
 z rz r" uvr @ " © n" • r.:.n.n @  
 °ront nv u-@y ov @ "t n"t  
 qv @ . xn" qnyz ° .n @ r. © n"  
 v ° @ " ° v n"t z rz ov n" n4  
 Wvny nu-@yov @ "t yz n2u-@y  
 ov @ "t rz • n @ qn" ° r @ ... ° " n4

ff v z n" ntrq p-z z r. pny n" q  
 z r r ff ° r psvrq .r." ffuz r" ff n°  
 n ° ff...u-ffy / v pffqv t qnz -" q°0  
 ° rfs-.ff v ffur qrp.r r -s s-° ff. v. t  
 ntr" p 5 P-...r nz • y3 svr ° ff...  
 u-ff β s-ff. ° ff...u-ff β n" q ° - -" 5

=4 av t xn @ • r " tu " vn " xnz n... A5  
 u-@y nqnyu • r.:r" @°r  
 on" nx" n z nyz xnz n... n"t  
 qu "v @ .unqn • on" nx" n  
 z nyz xnz n... n"t @.:r qn4

\_--z -ppff n" p .nff v ffur " ffz or...  
 -s .:z 4" v uff -ppff v r q qv v r q  
 o ffur " ffz or...-s .:z 4" v uff  
 n nnyoy z ff ff yr qo 877 • r. pr " fb

A4 \_n @ 3.n @ ynz n @z z r " t v n • B5  
 nqnyu on" nx" n z nyz @z • n @  
 @q ... n"t @.:.nxnv .z nyz  
 @z / qr " tn" on" nx" n @z  
 n"t z r " t v n • qv u-@y n @  
 nx-z -qn° vnyv " n4

K r. ntr y" t ffu -s ° ff v ffur  
 " ffz or...-s or q4" v uff ff r q / t ff ° ff  
 " v uff qv v r q o ffur " ffz or...-s  
 t ff ° ff p-z v t ff ° r " q ffur " v uff  
 nffur npp-z z -qnff- " 5

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<https://tapanulitengahkab.bps.go.id>

m  
j w x - GA

c k f & f d  
d m m 5B9AH B9BA  
d x- h- w w x i xz y j w w j- w  
h- - y 4A89G A8A9

a. z x x x o fl	978E	978F	9797	9798
/80	/90	/: 0	/: 0	/: 0
a-s-y -	4	4	8	55
Ksv—	8	4	4	55
d-t-s-y ≤	4	4	4	55
U fl	4	4	4	55
d-t-s-y ≤	4	4	4	55
as-s-s≤	8	8	:	55
e ±s	4	4	8	55
ds v±	4	4	4	55
es -s≤V6 fi-	4	4	4	55
d-sz -	4	4	4	55
T fi-s-y	4	4	4	55
d-t-fl	4	4	4	55
d-t-fl Ks s	4	8	4	55
as s-t e t-s-y	4	4	4	55
Ks	4	8	4	55
d Psv -y	4	4	4	55
J-s-y fl Mw -	4	4	4	55
Ks f s s	4	4	4	55
V s-y s fl s	8	4	4	55
d-s-y -y	4	4	4	55
j x x j... x	:	:	B	55

d fl t w d ≤ tvC M-s aw s-s fl s ≤ V vs fl vs-s aw fl s-s-s aw--s-s ew sv ds a-s Tst s w s es s ≤ fl e w s y z 6 fl vx r v u  
l a v fl d i x K rz Z tv sner r fl fl e v fl x r y cv xv fl t



m  
jvx - GB

c a R e 5d 5 m 5  
m f d d m m 5  
B9BA  
d x- W - 7e - Pyy zw 4h w z Q-z x  
i xz y jw w j- w h- - y 4A8A9

a.zx x x o fl	V ...-x N -x x x/ x x0 d fi U fi 1 ffl 2	ax x n	j... x j - V
/80	/90	/:0	/;0
a-sy -	4	4	4
Ksv—	4	4	4
d†sts y ≤	4	4	4
U fl	4	4	4
d †sts y ≤	4	4	4
as y s ≤	8<	:=	;; 8
e †s	4	4	4
ds v ±	4	4	4
es -s ≤ V6 fi-	4	4	4
d-sz -	4	4	4
T fi y	4	4	4
d †fl	4	4	4
d †fl Ks s	4	4	4
as s † e t y	4	4	4
Ks	=	=A	8; B
d Psv y	4	4	4
J s y s fl Mw -	4	4	4
Ks f s s	4	4	4
V s y s fl s	;	97	: 7
d-s y y	4	4	4
<b>jx x j... x</b>	<b>9B</b>	<b>A: A</b>	<b>C87</b>

d fl t w6d≤ tvC Kad3d w-Q wiesz s≤s/gQeU06L ad3t r z z fl u: fl v x 2R≤vffd v

$\frac{m}{jwx} - \text{GK}$

c a R e f d  
 d x- W - 7e - Pyy zw x R w yw  
 jw w j- w h- - y 4A89G A8A9

a.zx x x o fl	978E	978F	9797	9798
/80	/90	/:0	/;0	/<0
<b>V ..0..y x o fi d</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>
K≤s≤y 8 7 dr	4	4	4	4
K≤s≤y 9 8 <sup>tu</sup> dr	4	4	4	4
K≤s≤y : 9 <sup>u</sup> dr	8	8	8	8
K≤s≤y ; ; y dr	4	4	4	4
K≤s≤y < ; y dr	4	4	4	4
<b>V ..d 0..y x j o fi d</b>	<b>8C</b>	<b>8B</b>	<b>99</b>	<b>9A</b>
W ≤K ≤s ≤y 8 7 Y ≤f dr	:	9	A	B
W ≤K ≤s ≤y 9 8 <sup>tu</sup> Y ≤f dr	87	87	88	89
W ≤K ≤s ≤y : 9 <sup>u</sup> Y ≤f dr	:	:	:	:
W ≤K ≤s ≤y ; : y Y ≤f dr	4	4	4	4
W ≤K ≤s ≤y < ; y Y ≤f dr	4	4	4	4
<b>Y x φ fi</b>	<b>8D</b>	<b>8C</b>	<b>9:</b>	<b>9B</b>

d fl tw6d≤ tvC Kad3d w-Q wfesz ≤s≤/gQeU06Lad3dr z zt 9lu≤flv z 2R≤vffd v



$\frac{m}{jwx} - GD$

m i d a 1m d2 k 6k  
 e m f f d S  
 d m m 5B9BA  
 h eyy w y hw-0e h1w z P - w - b- i w x  
 R w yw jw w j- w h- - y 4A8A9

a..zx x x o fi	j x f... n k fi nfi	x ax x d 0 x j o fi	hx x4x x bx x jx U fi h	c ... x o fi
/80	/90	/:0	/:0	/-0
Ss ≤ s -6r fl r	: 73;			
Ont s -6rs r	: 93BA			
V s w6Wr ty	: >9			
J -6K zfi	: <3			
V w6Wvz	: 83k			
S ≤6T flv	; 73>			
S fi6T ffi	9; 3>			
J y -6K x	9=> B			
dw wfi t w6dv vfi sv	: A33;			
Y ± t w6Zt ≤v	; =>7:			
W wfi t w6Y ≤vfi sv	; A3B			
Mw wfi t w6Nvtrfi sv	<93 =			
<b>9798</b>	<b>: D39</b>			

d fl t w6d ≤ tvC Kad3d w-Q w6K fi s ≤ /gQed06L ad3d r z z fl u ≤ fl v z 2R ≤ vffd v

$\frac{m}{jwx - G\bar{E}}$

m i d a 1m d2 k 6  
 e m f d m m 5  
**B9AE 6B9BA**  
 h e y y w y h w - 0 e h 1 w z P - w - b - i w  
 j w w j - w h - - y 4A89D5A8A9

$jx$ u fi	$j$ n	$x f \dots$ k fi	$x a x x^8$ nfi	$hx x4 x x bx$ U fi h	$x j x$ c ... x <sup>8</sup> o fi
/80	/90		/: 0	/: 0	/-0
978<		:7B=			839
978=		:93>>			83=
978>		;B3 >			93<
978A		< 3-9			93:
978B		:<B<			83-B
9797		8<3;			83B
9798		:>89			

Ls s s ≤ vC<sup>8</sup> M s e - s s a w s y z ≤ s s T s f s Q w f v s ≤ c s s 4 s s f i f s s f l f l w e y - s s z ≤ 978; 978> - v s ± v - s s - s s s s  
 f j v r 867: 867A ≤ w l r r ≤ f i s t r f l t r v r f l u K v r x v f f l x y s v r r v f l ≤ t f f i z v u  
 d f l t w e d ≤ t v C Kad3d w-Q w f i K f i s s ≤ / g Q e d 0 8 l a d 3 d r z z f l u : f l v z 2 R ≤ v f f i d v



m  
jwx - GF

h    6h    p    f    d    c  
i    d    m    m    5B9BA  
j    ex -y x i xz    y w z S    w y-    fw zw 4  
A8A9

ey ...m x x j    ey .z	a.zx x x o fl	Yx x -x fx -x Y fi    I fi fi 1 2
/80	/90	/:0
J-ew...sd-- 4 -	e ±±	A
J-ew...sdz t ±	ds v±±	<
J-ew...sJ fits Ks-	es s≤V6 fi-	8A3<
J-ew...sP fits	es s≤V6 fi-	9<
as≤s-Q ffi v	as≤s≤	4
as≤s-as≤s≤	as≤s≤	4
as≤s-Rs≤s as≤s≤	as≤s≤	4
as≤s-Rs≤s Ts fi ≤s≤	as≤s≤	8
as≤s-V s s V6 fi-	d ±fl	; <
as≤s-Ks -	d ±fl Ks s	; 7
as≤s-Rs≤s dt ≤s≤	d ysv ±	<
as≤s-T s fi s s yts ±	d ysv ±	⇒
as≤s-Tsvwey	Ks	⇒
as≤s-Tsz ≤	J ±sfl Mw -	B<
as≤s-d— 4 —	J ±sfl Mw -	B<
a fi a -	es s≤V6 fi-	4
a fi V s fi	es s≤V6 fi-	4
a fi Ts ffi s ≤ ±	es s≤V6 fi-	4
V s ±fl as s ≤ ±y-	Ks f s s	A7
V s ±fl V sz f iys-	Ks	A7
e y e ±W fi R fi fl W s ≤ s s	Ks	A7
J w ±d fl s fi	d-sz -	8A

d fl tw6 ≤ tvC M s as - - s s v ≤ tvC vs ss ≤ tvC s v es s ≤ fi e v s z s 6 e s z fi K lu M fi v Z tv s v r fl fi e v l x r y c v x v ft

$\frac{m}{jwx - GG}$

c d p R g  
 d m m 5B9BA  
 d x- U - w z S - yj l j  
 ex -y jw w j- w h- - y 4A8A9

ey ...m x x j ey .z	m x x x N b p	m x x x d x x x Y p
/80	/90	/: 0
Ss ≤ s -6Tr fl r	4	9B8=7
Ont s -6Pvs r	4	9<777
V s w6Wr ty	4	98777
J -6K zfi	4	98777
V w6Wvz	4	: A9=7
S ≤6T flv	4	9A777
S fi6T ffi	4	9B777
Jy -6K x	4	: <8<A
dw wfl t w6dv vfi sv	4	9: 777
Y± tw6Zt ≤v	4	97777
W wfl tw6Y ≤vfi sv	4	: 7777
Mwvfl tw6Vtvfi sv	4	: =877
jx x j... x	4	:: BCDE

d fl t w6d ≤ tvC M s as - -s s vs ≤Tvt vs ss ≤Tst s vses s ≤ fiensz 6e ≤ zfi Kflu M ffi vZ tv sver r fl fievflxry cvxvft





m  
jwx - GH

c T S f d d  
m m 5B9BA  
d x- R w W- w -x i xz y jw w  
j- w h- - y 4A8A9

a.zx x x o fl	Y x Px x 0 -x x j fl W fid fi
/80	/90
a-sy -	4
Ksv—	4
d±sts± ≤	4
U fl	4
d ±sts± ≤	4
as±s±	4
e ±s	4
ds v±	4
es -s≤V6 fi	4
d-sz -	4
T fi±y	4
d ±fl	4
d ±fl Ks s	4
as s ± e t±y	4
Ks	8
d Psv ±y	4
J±sfl Mw -	4
Ks f s s	8
Vs± sfls	4
d-s± ±y	4
<b>jx x j... x</b>	<b>9</b>

d fl twd± tvC M±s as - -s vs±Tvt vs ss±Tst s wses s± f±eny±sz 6es zfi Kflu M ffi vZ tv±ver rfl f±evflxry cvxvfl

**BAB**  
Chapter

**08**

# TRANSPORTASI DAN KOMUNIKASI

*Transportation and Communication*

<https://tapanulitengahkab.bps.go.id>



<https://tapanulitengahkab.bps.go.id>

**i Vg cVeRI Rg mVdgB**

**j TRWdXPb de j Ti**

74 Mn@n@n"°.-.@°vqn" x-z "xn°v  
z ry@ @C  
n4 [n" wnt wmy"  
o4 J"tx @n" qn.n@  
p4 J"tx @n" qn.n  
q4 [-° qn" @yr x-z "xn°v4

85 Nnffh-" ffn"°.-.ffhff-"° n" q  
p-z z fff'pnffh-"° p- r.D  
n5 Vr"t fū-s.-.nq  
o5 Vn"q ffn"°.-.ffhff-"  
p5 'rnffn"°.-.ffhff-"  
q5 [-°ffn"q ffyr p-z z fff'pnffh-"5

84 Ur"qn.nn" or.z.-@... nqnynu  
°r@n• xr"qn.nn" n"t qtr.nxxn"  
-yu •r.nyn@n" @x"wx n"t  
nqn •nqn xr"qn.nn" @:ro @  
ovn°n" n qtr "nxn" "©x  
n"tx @n" -.n"t n@n on.n"t qv  
n@n wmy" .n n°ryny xr"qn.nn"  
n"t or.wmy" qv n@n .ry4  
Ur"qn.nn" or.z.-@...n"t qv@n@  
nqnynu °rz n w"v xr"qn.nn"  
xrp ny xr"qn.nn" or.z.-@...  
aX\$[-yv.qn" x-.:° qv y-z n@x4

95 W-ff... ruvyr° n.r. n" xv°q -s  
ruvyr° z -ff.v.rq o z npuv'r  
°rff fñ v' fū-°r ruvyr°3 fūr n.r.  
ffffny fffrq s... ffn"°.-.ff't  
•r-°y° -..t--q° -" ..nq° r pr•ff  
ruvyr° z -v't ny-"t n .ny n  
y'r5 aur qnff p- r..ny xv°q° -s  
z -ff...ruvyr° r pr•ffū-°r ory-"t  
ff'S'q-"r°v n.K.z. P-.pr S'q-"r°v n"  
'ffff [-ypr n"q Nv y-z nffp M-.:°5

94 W-oy •r" z •n"t nqnynu  
°r@n• xr"qn.nn" or.z.-@...  
n"t qvr"txn•v qr"tn"  
@z •n@q q x "©x °ron" nx3  
on" nx" n qry•n" -.n"t2@qnx  
@.z.n° x @z •n@q q x "©x  
•r"trz qv2 onx qvr"txn•v  
n@n @qnx qvr"txn•v ont n°v4

: 5 [n°r"tr...pn.: n.r. n" z -ff...  
ruvyr° vfu -" z -r. ffn" rvt uff  
°rnff3 r pyffqv't °rnff s-...q.v.r.3.  
vf pn" or vfu -... vfu-fffu u--f5

: 4 W-oy° nqnynu°r@n• xr"qn.nn"  
or.z.-@... n"t qvr"txn•v  
qr"tn" @z •n@q q x "©x  
yow qn.v.qry•n" -.n"t2@qnx  
@.z.n° x @z •n@q q x "©x  
•r"trz qv2 onx qvr"txn•v  
n@n @qnx qvr"txn•v ont n°v4

; 5 Lffr° n.r. yn.tr •n°r"tr...pn.:  
un v't °rnff s-..z -r. ffn" rvt uff  
•n°r"tr.:3 r pyffqv't °rnff s-...  
q.v.r.3ffpn" or vfu -... vfu-fffu--f5

; 4 W-ow ©.x nqnyu °r@n.  
xr"qn.nn" or.z-©... n"t  
qt "nxn" "©x n"tx @"  
on.n"t2 °ryñv z -ow  
•r" z•n"t2 z -ow ov qn"  
xr"qn.nn" or.z-©....-qn q n4

<5 a.ffff° n.r. n" z -ff... ruvyr°  
ffrq ff ffa"°.-ff t--q°  
r pyffqv"t •n°r"tr... pn.°3  
offr°3 n"q z -ff.p pyr°5

<4 'r.rqn W-©...nqnyu xr"qn.nn"  
or.z-©...or.-:qn q n qr"tn"  
n@ @".n..z nu..z nu2qr"tn"  
n@ @".n xr.r.@ n°z •v"t n@  
xr"qn.nn" or.z-©... or.-:qn  
@n @".n ..z nu ..z nu4

=5 W-ff.p pyr° n.r. n" xv"q -s ff -  
urryq z -ff... ruvyr° vfu  
-... vfu-ffff u-z r° n"q vfu -...  
vfu-ffff °qr .ny-.ff.r.r4 urryq  
z -ff... ruvyr° vfu-ffff u-z r°5

=4 Mh@ •n"v"t wñn" or.°: z or... A5  
qn.v. Mv n° [rxr.wñn" bz z  
qn" [r"n@n" \_ n"t  
Uno •n@ an" n" yw ar"tnu4

Nnff -" fur y"tffu -s fur .-:nq°  
qnff r.r.ffff" s.-z [ffoypd -x°  
Ysspr°-san• n"ffyar"tnu\_rtr"p 5

A4 Uy-z r@... •r" z •n"t nqnyu  
wz ynu xy-z r@... qn.v. °rz n  
•r" z •n"t n"t or.n"txn@  
Kr°n.n" v"v z r... nxn"  
•r" wz ynun" w.nx n°ny ©wn"  
z n°v"t z n°v"t •r" z •n"t4

B5 [n°r"tr... xy-z rff... v" ff-fhy  
xy-z rff.°: -s ny qn.n.ff"t  
•n°r"tr.5 auv z rn°ffiz r"ff v"  
fur °ffz -s qvff"pr orff rr" fur  
•ynpr -s -x.v" n"q fur •ynpr -s  
qr°ff nff- ffxr" o ny•n°r"tr.°5

B4 \_n@3n@ w.nx •r.wñn"n"  
•r...•r" z •n"t nqnyu .n@3  
.n@ n"t qv@z • u -yru  
°r@n. •r" z •n"t2 n@  
wz ynu xy-z r@... •r" z •n"t  
qont v qr"tn" wz ynu  
•r" z •n"t or.n"txn@

C5 Kr.r.ntr y"tuff -s wffi".r •r...  
•n°r"tr..v" z rn" qvff"pr ffxr"  
o rnpu •n°r"tr...-...ff-fhy -s  
•n°r"tr.4xy-z rff.qv qrqo fur  
"ffz or...-s qn.n.ff"t •n°r"tr.°5

764 Uy-z r@.3©" nqnyu wz ynu  
xy-z r@... °rz n ©" n"t  
qn"tx @Kr°n.n" v"v z r... nxn"  
un°w •r" wz ynun" w.nx n°ny  
©wn" z n°v"t z n°v"t on.n"t  
•r..©" 4

875 a-4xy-z rff...v" ff-fhy xy-z rff...  
-s ny pn.t.-r° pn..v.q5 auv v"  
fur °ffz -s qvff"pr s.-z n.r.n  
-s -x.v" ff n.r.n -s qr°ff nff-"  
s... rnpu ff" -s pn.t.-r°5

774 *\_n@3.n@ m.nx n"tx © on.n"t  
nqnyu .n@3.n@ m.nx n"t  
q@z • u -yu °r@n. @"  
on.n"t n@ wz ynu xy-z r@...  
@" qvont vqr"tn" @" qvz n@*

885 *K r.ntr qvff"pr -s pn.t.-r°  
y-nqrq v° z rn" qvff"pr -s  
rnpu ff" -s pn.t.-r° y-nqrq -...  
ff-fhy ff" &vy-z rff... qv vqrq o  
ff-fhy ff" -s pn.t.-r° y-nqrq5*

784 *' z or..qn@ @n"°.-.@°vor.n°ny  
qn.v. z n°vtz n°vt v°@n"°v  
@.xn@qx z • yn" -yu Knqn"  
[ n°@ @@xUno • n@" an" n" y  
ar"tnu °r@n. o yn" qn" @u "4*

895 *Nnffh -" ffñ"°.-.ffff-"° n.r.  
p-z • yrq o fūr L[ '4 fffffp° -s  
an" n" ffy ar"tnu \_rtr"p 3 fūr°r  
qnffh n.r. -offv°rq s.-z .ry n" ff  
v° fffff-"° r r...z -"ffu n"q rn.5.*

794 *Un"@... [-° nqnyu @z • n@  
• rz or.v. • ry n"n" x-z "xn°v  
@. @y° qn" n@ ° .n@ryx@-." w2  
yn n"n" • nxr@ yn n"n" y-tv@x2  
yn n"n" @n"°nx°v xr n"tn"2  
qn" yn n"n" xntr n"n" • -°  
"©x xr•r" @'tn" z z 4*

8: 5 *[-°ff Ysspr v° n °r...xpr • .: vqr...  
snpyff -s .vff" p-z z fff vnfir-"  
n"q -...ry pff-." vp z nvyβ • n.pry  
°r...xpr3 y-tvffp° °r...xpr°3  
s' n" pny ffñ"°npffir-"  
°r...xpr°3 n"q • -"fhy °r...xpr° ff fūr • ffoyxp5*

7: 4 *aryx-z "xn°v nqnyu °r@n.  
• rz n"pn.n"2 • r"tv.vz n" qn"  
n@ • r"r.vz nn" qn.v. °r@n.  
v°s.-z. n°v qnyz or"©x @n"qn3  
@n"qn2 v° n.n@ ©y°n"2 tnz on.2.  
° n.n2qn" o " vz rny v°v@z  
xn n@ -- @x2 .nqv-2 n@ °v@z  
ryx@-z nt"r@x ynv" n4*

8; 5 *aryp-z z fff vnfir-"  
v° pyffq° r r...  
ffñ"°z vffit3 qryr.v:t n"q -...  
.rprv v°t s.-z r r... v°s.-z. nffir-"  
-s z n.xv°t3°v" nyβn. fipr 3° vffir.3  
°-ffiq n"q -xpr fū.-ffu °ffñ"q  
-s v.r. ° ffz 3 -> ffp3 .nqv-3 -...  
-fūr... ry pff-:z nt"rffp ° °ffz 5*

7; 4 *Tn.v°tn" @yx-z "xn°v  
nqnyu .n"txnn" • r.n"txn@  
@yx-z "xn°v qn"  
xry"txn"n" n n"t qt "nxn"  
qnyz or.@yx-z "xn°v4*

8<5 *aryp-z z fff vnfir-"  
"rff -x.  
v° • r.v.ur.ny "rff -x. -s  
ffyp-z z fff vnfir-"  
n"q  
vff r"ffv z r"ff fffrq v° fūr  
z rn"° -s ffyp-z z fff vnfir-"  
5*

7<4 *S'@.":r@nqnyu °ro nu m.v°tn"  
x-z • @... • oxyx qv °ry...u  
q "v4 S'@.":r@ z r" rqvnxn"  
nx°r° xr °rwz ynu yn n"n"*

8=5 *aur v°ff.":rff v° n -.yq vqr  
• ffoyxp p-z • ffff... "rff -x.5 ff  
• .: vqr° nppr°° ff n "ffz or...  
-s p-z z fff vnfir-"  
°r...xpr°*

x-z "wn°v @.z.n° x d-.yq  
d vqr dro qn" z rz on n ° .r.y2  
or.vn2 uvo .n"2 qn" syr qn@4

v pyffqv t fur d-.yq d vqr  
dro n"q pn..v° r4e ny3 "r °3  
r"ff.fvz r"fb n"q qnff syr°5

7=4 U-z • @... z r"tnp • nqn  
x-z • @... qr°xf•2 yn•@•  
.•-.ffoyr/ n@ ffoyff .n@  
x-z • @.tr"ttnz n"t°r...n/4

8A5 K p-z • ffff....rsr.: ff n qr°xf•  
p-z • ffff.3. n yn• ff• /•-.ffoyr0  
p-z • ffff... -... n ffoyff /-...  
°v yn... un"quryq p-z • ffff.05

7A4 Mr°x@• .r.:-"ny p-z • ffff.4 M  
nqnyu x-z • @... n"t ovr°n" n  
@@• qv °n@ @z • n@ ovr°n" n  
• r"tt "n qv@z • n@n" qv  
qr•n"" n2qvoryxn"t xr o-n.q4

8B5 Nr°xf• /r.:-"ny p-z • ffff.6  
[MD v n p-z • ffff...funff fffny  
.rz n v° svrq v -"r • ynprE  
"-z.ny fur ffr...v° • ynprq v  
s.: "ff-s vB oruv° q fur xr o-n.q5

7B4 Vn•@• .•-.ffoyr/ nqnyu  
x-z • @... n"t p x • xrpv  
"©x qvon n qn" ovr°n" n  
z rz "txv xn" ©tn° n"t°nz n  
°ront nv x-z • @...qr°xf• wtn  
z r"pnx • "-ffo--x qn" "rfb--x  
@@• v@qnx @.z.n° x ffoyffqn"  
°rw" v x-z • @... tr"ttnz 4

8C5 Vn• ff• /•-.ffoyr0 p-z • ffff...v n  
p-z • ffff...funff v °z nyr"-fft u ff  
pn....n"q fffny r"noy° fur °nz r  
fh°x° n° n qr°xf• p-z • ffff.E v f  
v pyffq° "-ff o--x° n"q "rfb--x°  
offfq-r° "-ff v pyffq ffoyff n"q  
°v yn... un"quryq p-z • ffff.:5

975 anoyff .n@ °rw" v x-z • @...  
tr"ttnz / nqnyu x-z • @...  
n"t @.v. @t.n°vxr yn n.:r"©u  
qn@.2. n"t qv•r.n°wn" qr"tn"  
z r" r"©u yn n... qn.v.nqn  
z r"tt "nxn" xr o-n.q svx4

/-...v yn...un"quryq p-z • ffff.0.v  
n p-z • ffff...funff v v ff t.nff q v ff  
n synff ff-fpu °p.r.r"3 -•r.nff q o  
ff-fpuv t fur °p.r.r" .nffur.fun" /-...  
n° rynn°Offv t n•u °vnyxr o-n.q5

Mhynz uny v v @qnx @.z.n° x  
• r.nyn@" qr"tn" oror.n• n  
xrz nz • n" x-z • @°v °r.r. @  
°r© ac • v @.2. qn" • r.n"t xn@  
qr"tn" @y•-" °ront nv  
s "t°v @z n z r.r.xn2 °r.r. @  
°z n.ff u-"r4

Sf q-r° "-ff v pyffq r"fvz r"ff  
vfu °-z r rz orqqrq p-z • ffff t  
nowfir°3 fffpu n° °z n.ff ac °rff3  
n"q qr vpr° vfu ffy•u-" n°  
furv...v n... sff pffr-3 °ffpu n°  
°z n.ff u-"r°5

**H7A nkRg l i h kmRI b  
j hPdi f e hjPj Xe d**

**m** **H7A7A** **i c f m d**  
**j vx -** **i d m m 1 5**  
**B9AH B9BA**  
**b- h vx x i w j w w j- w h- - y 0 14**  
**A89G5A8A9**

<b>i x Yx x n fi o fi</b>	<b>pi ū fi</b>			
	<b>978E</b>	<b>978F</b>	<b>9797</b>	<b>9798</b>
/80	/90	/:0	/;0	/<0
Ssfs≤Wwys M≤fl c≤u	8A83AB	8A83AB	8A83AB	8A83AB
Ssfs≤a ≤- a ≤fltv c≤u	↔↔	↔↔	↔↔	↔↔
Ssfs≤Tst s w≤ cvxvft c≤u	>993<	>993<	>993<	>993<
<b>Y x φ fi</b>	<b>FC7FC</b>	<b>FC7FC</b>	<b>FC7FC</b>	<b>FC7FC</b>

d fl twéd≤ tvC M≤ avéw s≤fl fl vs≤awes ss≤c s>Tst s wses s≤ fweysz6a sfl h≤ff dv zvrflud r z flūffifflz s w  
er rfl tēvflkry cvxvft



$\frac{m}{jwx -}$  H7A7B

i c f c i c d  
 c R d m m 1 2B9AH  
 B9BA  
 b- h vx x j - i wy- w z P w -z R w  
 jw w j- w h- - y 0 4A89G5A8A9

a. x-xx Yx x n fi W	978E	978F	9797	9798
/80	/90	/: 0	/; 0	/< 0
Y... f... xx o fi fi				
J sfi K yr ffvu	; BB3 <	; BB3 <	<983 <	<983 <
Tw ±fi Qr vffi	A; 39	A; 39	=93-9	=93-9
es ≤z Or y	8: B37	8: B37	8: B37	8: B37
e-vs ±v-w-±l- Z yv	4	4	4	4
a..x Yx x N x U fi Wfi				
Tw s R 7 <sup>de</sup> Mfi	4	4	4	4
Tw s RR 8 <sup>flu</sup> Mfi	4	4	4	4
Tw s RRR 9 <sup>u</sup> Mfi	4	4	4	4
Tw s RRRJ 9 <sup>u</sup> Mfi K	8A83AB	8A83AB	8A83AB	8A83AB
Tw s RRRK 9 <sup>u</sup> Mfi L	<37	<37	<37	<37
Tw s RRL 9 <sup>u</sup> Mfi M	>993 >	>993 >	>993 >	>993 >
Tw s ±s ±v-±l- f fl vtz vu Mfi	<37	<37	<37	<37

d flt w6d ≤ tvC M-s avwv.ss ≤ fl fl vs ≤ awes ss ≤ c s-y Tst s vses s ≤ fi emysz6a s fi h ≤ ff dv zvr flud r r fuffiffilzix sw er rfl iffevlxry cvxvft

$\frac{m}{jwx} - HAZ$

i c d f d c  
 d m m 1 25B9AH69BA  
 b- h- - y h wz x R z jw w j- w  
 h- - y 0 1A89G5A8A9

a. x-xx n fi W	978E	978F	9797	9798
/80	/90	/:0	/:0	/:0
Ks± Q≤u	9A83>	:783A	:=:3>	:B83
dws± W±iv r v	< 3;	<83:	<83:	<83:
c s± Nrfi rxvu	9; >A7	9;; 37	8A938	8< BA
c s±kws LruffiNrfi rxvu	8; 73=	89; 3=	89; 3=	89; 3=
e-vs±v-w±t- Z yv	4	4	4	4

d fltw6d± tvC M± awv±ss±f fl fl vs±aw±ss±c s±Tst s w±es s±f±ew±sz6a s±ff h±ff dv ±vrfiud r ±ruffiNrfi±x ±v  
 er rfi ±f±vflxry cvxvft

<https://apanulitermahkab.bps.go.id>

m  
jwx - H7AD

c i c f d  
d m m 5B9BA  
d x- w z b- Q z - x i xz y jw w  
j- w h- - y 4A8A9

a.zx x x o fl	Y x p fi	fx x h / 0
/80	/90	/: 0
a-sy -	>	AB377
Ksv—	8<	8=37
d-tst-sy ≤	97	9: 83A7
U fl	>	; B37
d -tst-sy ≤	;	9: 37
as-sy ≤	A	87=37
e ±s	9;	9; 83<
ds v±	<	; <3<
es -s≤V6 fi	98	9AA377
d-sz -	9	8>37
T fsy	9B	98<3<
d -sfl	9:	8>37
d -sfl Ks s	<	9B37
as s t e t-sy	:9	; ; 83A=
Ks	:	87B37
d Psv sy	8:	B: 37
J-syfl Mw -	8:	: <37
Ks f s s	9	: 8377
V-sy sfl s	<	:: 37
d-s-sy sy	88	8<B37
jx x j... x	9AF	

d flt w6d≤ tvC M-s avew.ss=sfl fl vs≤awes ss≤c sy Tst s veses s≤ fweysz6a s fih ≤ff dv zivrflud r z fūffifflizk s w  
er rfl ttevfikry cvxvft

$\frac{m}{j_{wx} -}$  HAZE

c i R R n  
 f b m f c R n  
 d m m 5B9BA  
 d x- R w w z j -U-- f x yj w w  
 e h -f- x j - jw w j- w h- - y 4  
 A8A9

Y... N x k p l fl p fi fi	Y x f... x xx j fl W fi	Y x N x-x j fl / 6 0
/80	/90	/:0
K Jsy± s≤f fl fl J≤s Tst s wst s J≤s a ≤-JTJa0 a sff erfl ≤ L c≤ v fl v 3Nz z 5lt rflu fl v 3a ≤zltv	4	4
K Jsy± s≤f fl fl J≤s Tst s wst s Mtsfl a ≤-JTMa0 a sff erfl ≤ L c≤ v fl v 3Nz z 5lt zl a ≤zltv	4	4
K Jsy± s≤f fl fl J≤s awwss≤Mtsfl Tst s wst a sff erfl ≤ L dy ffdv z v zleyvc rffi Nz z	A	<A
Kwus±kwfl W≤≤ e z t fff	4	A>=

d fl twd≤ tvC Mss awz t sy≤Tst s wst s ≤ flevsyz6erfl ≤ r zfl Z tvsner rfl fzevflxycvkvft

$\frac{m}{jwx -}$  H7A7

U g i R n c  
 R d m m 5B9BA  
 R w dw -w z j wf x yj w w U--  
 jw w j- w h- - y 4A8A9

dx xf... x xx W fi j fi	Y x N x-x j fl / 6 0
/80	/90
Lg5d+ fi s≤Rsvsz	4
Lg5es -vs	4
T wwt-	A7
Lg5d-s d s Ks	=
ae5K s s Ss s V6 fi-	8>A
Lg5V s≤s.	8
ae5dst -s dwsz ws	=
aY5Ksfl zs	9; B
<b>Y x φ fi</b>	<b>BDE</b>

d fltw6ds tvC Mss awz t s y s ≤ Tst s wses s ≤ f w s y z 6 e r fl ≤ r z s fl Z tv s w r fl f f e v l i x r y c v x v f l t

$\frac{m}{jwx -}$  H7A7G U g i R S c  
 R d m m 5B9BA  
 i R w dw -w zd x- U-- jw w  
 j- w h- - y 4A8A9

dx x f... x xx W fi j fi	Y x N x-x j fl / 6 0	Rx x N Wi fi / 0
/80	/90	/:0
Lg5d+ fi s≤Rvsz	8<	9>7 6v >77
Lg5V s≤K y-	97	>77
Lg5Mt s Ts s	9	9>7 6v ; <77
aY5d≤ es s≤ fi-	:>	: <77 6v ; <77
Lg5Kwv→s -Jtsv-dv≤ s	:7	98 777
ae5es≤s. s Ts s Kw→s	87	98 777
ae5Os -s J→± s≤a s sfl s	<	: <77 6v ; <77

d fltw6≤ tvC M≤ awz t s y s≤Tst s vses s≤ fweysz6erfl ≤ r zfl Z tv sver rfl fzevflxrycvxvfl

# TRANSPORTATION AND COMMUNICATION

m  
jwx - H7A7H

c d S m 8  
i f S c d d  
m m 1 5B9BA  
d x- c l- y- h- -z7fw jw- x  
c w z j - l- y- jw w j- w h- - y  
0 HA8A9

0 x i	i .-x ofl Wf	c y i fl	0 V	Y f
/80	/90	/:0	/:0	/-0
Ss ≤ s -6r fl r	<	9⇒	9	8=
Ont s -Pvs r	8	9⇒	<	8:
V s w6Wr ty	:	9=	4	8A
J -6K zfi	9	98<	8	8B
V w6Wvz	>	999	9	8:
S ≤6T flv	8	9>	:	99
S fl6T ffi	9	9<<	8	98
Jy -6K x	;	9: >	9	8;
dw wfl t w6dv vfi sv	>	:: 8	8	9;
Y ± tw6Zt ≤v	:	: 99	;	8<
W wfl t w6Y ≤vfi sv	A	; 8A	9	::
Mw wfl t w6Nvtrfi sv	89	<99	87	;;



Vn" w@n" anor ySM- " ff' ffr q anoy A77A

0 x i	j l q p	0.zx c n fi i	i...-x c i	Nx 4N x 0..x d fi a
/80	/90	/:0	/:0	/<0
Ss ≤ s -6Tr fl r	BA	9	8 A9<	4
Ont s -6Pvs r	87=	<	8⇒9	4
V s w6Wr ty	BA	9	8=:	4
J -6K zfi	B;	4	8:≡	4
V w6Wvz	>A	9	8 9B;	4
S ≤6T flv	B<	8	8 ; <	4
S fi6T ffi	B;	4	8 <A7	4
Jy 6K x	878	8	8 ≡<	4
dw wfl tw6dv vfi sv	879	8	8 >A	4
Y± tw6Zt ≤v	AA	4	8 >9<	4
W wfl tw6Y ≤vfi sv	8:7	4	8 AA>	4
Mwvfl tw6Vtvfi sv	8≡	:	9 87:	4

d fl tw6d ≤ tvC f aaMKsvs ≤awsvvfi fs as s±vs ≤cw ± -Mwswz a ≤-d fl s wsf s s as sv s ≤6cvx z fl r ffr rflu cv z z fl  
Wr flrxvfi vfi Kxvft f aaN ≤vd fi r v r f r r a ≤ z fl tv z fl ar flur fl



$\frac{m}{jwx -}$  H7A7

S l b f 1 f 2 U  
 f c i m m 5B9BA  
 d x- S b y- - X -z x S y f y-e y-  
 j w w j- w x j - l- y-4A8A9

$\frac{0}{i}$	$\frac{N}{/80}$	$\frac{OW}{/90}$	$\frac{OWk}{/;0}$	$\frac{OW}{/;<0}$	$\frac{OWk}{/=>0}$	$\frac{P}{/;>0}$	$\frac{Y}{p fi}$
$S \leq s$	/90	8B	: =	4	9<	;; 8	CAC
$0 \leq s$	8>	89	: 9	8	8:	99=	ABE
$V s w$	8A;	B	: 9	8	9>	9<A	B88
$J$	8>	8>	: =	8	98	97=	ABB
$V w$	8A7	88	9<	4	8=	9<<	AED
$S \leq 6T$	9: A	8;	9:	8	8B	: =	CD8
$S f$	8B>	>	: =	4	8;	9<7	B7A
$J y$	8=A	8:	8B	8	8>	9<=	ADA
$dw$	8=	8;	;;	4	8>	98<	AA:
$Y \pm t$	8: ;	88	9B	4	8<	8B<	: EA
$W$	8=A	89	: >	8	8B	99A	ACB
$Mw$	8B:	A	9A	4	: 7	9>	B: 9
<b>9798</b>	<b>98FE</b>	<b>8AD</b>	<b>: CD</b>	<b>C</b>	<b>9: :</b>	<b>: 7DF</b>	<b>C 7: 7</b>



Vn" w@n" anor y5M- " ff' ff q anoy A4B

O x i	Y... -x U x i W th p f... x x x 6a					P	Y x p fi
	N	OW	OWk	OW	OWk		
/80	/90	/:0	/;0	/<0	/=0	/>0	/A0
Ss ≤ s -6r fl r	>	8	9=	4	89	87B	999
Out s -6vs r	;7	8	9:	4	87	≠	8B7
V s w6Wr ty	; <	8	99	4	99	A;	8DA
J -6K zfi	;B	;	9A	8	8<	A9	8DF
V w6Wvz	;B	4	8B	4	88	B8	8D7
S ≤6T flv	>B	:	8;	4	8:	89A	9: D
S fi6T ffi	;9	4	9>	8	88	>	8BB
Jy -6K x	<9	=	8<	4	88	≠	8C7
dw wfl tw6dv vfi sv	:9	8	8A	4	B	<B	88F
Y ± tw6Zt ≤v	9=	4	97	4	89	<A	88C
W wfl tw6Y ≤ vfi sv	;9	9	9>	4	B	>	8B:
Mwvfl tw6Wvrvfi sv	:A	4	98	4	9=	B9	8DD
<b>9798</b>	<b>BCE</b>	<b>8F</b>	<b>9C7</b>	<b>9</b>	<b>8C8</b>	<b>8 779</b>	<b>9 789</b>

Vn" w@n" anor ySM- " ff' ff q anoy A7B

O x i	Y... -x U x iW 6h p f... x x 6a fi					Y x p fi
	Nk	OW	OWk	OW	OWk	
/80	/90	/: 0	/; 0	/-< 0	/=0	/A0
Ss ≤ s -6r fl r	4	8A	88	4	8:	A9
Ovt s -6vs r	8	88	87	8	:	9C
V s w6Wr ty	9	A	87	8	<	9C
J -6K zfi	8	8:	A	4	=	9E
V w6Wvz	8	88	=	4	<	9:
S ≤6T flv	9	88	87	8	=	: 7
S fi6T ffi	8	=	B	4	:	8F
Jy -6K x	9	>	;	8	>	98
dw wfl tw6dv vfi sv	9	8:	8=	4	A	: F
Y ± tw6Zt ≤v	4	88	B	4	:	9:
W wfl tw6Y ≤ vfi sv	:	87	87	8	87	: A
Mw wfl tw6V tvfi sv	8	A	>	4	;	97
<b>9798</b>	<b>8C</b>	<b>89D</b>	<b>887</b>	<b>B</b>	<b>D:</b>	<b>:: 8</b>

d fltw6d ≤ tvC Ts ≤ Tw fi-s ≤ cw es s ≤ fiwys z6lz z a ≤ 6vZ tv sver rfi fiwfixry

m  
j w x - H7A7A9

S l b f 1 f 2 U  
f c d i i d  
m m 5B9BA  
d x- S b y- - X -z x S y f y- e y-  
j w w j- w x P yw / i- 4A8A9

0 x i	Y... a..x bx 4bx i fi	ω f..... x b fi	Y x p fi
/80	/90	/:0	/:0
Ss ≤ s -6r fl r	;99	99=	CAE
Ont s -6r vs r	: <	887	AC7
V s w6Wr ty	;78	889	B8:
J -6K zfi	9>>	8A9	ABF
V w6Wvz	9B7	8BB	AEF
S ≤6T flv	:B>	9<	CAD
S fl6T ffi	:<A	8; >	B7B
Jy -6K x	9B<	8A:	ADE
dw wfl t w6dv vfi sv	99=	998	AAD
Y ± t w6Z t ≤v	9>	889	: EC
W wfl t w6Y ≤v fi sv	:::	89<	ACE
Mw wfl t w6V tv fi sv	:>A	8<	B: B
<b>9798</b>	<b>A 788</b>	<b>9 79A</b>	<b>C 7: B</b>

d fl t w6d ≤ tvC Ts ≤ Tw fi -s ≤ cw es s ≤ fi e w s y z 6 lz z a ≤ fl v Z tv ≤ v r fl fi v fi x ry

$\frac{m}{jwx} - H7A7AA$

S m d e e d  
 m i m m 5B9BA  
 d x- j w y P y z- w z l y h-y z-z S y  
 f y-e y- j w w j- w 4A8A9

$\frac{0}{i} x$	$\frac{a.z.x}{u} xx$	$\frac{c...}{y} x$	$\frac{b x 0..x}{i f i e}$	$\frac{b x h x}{i e}$	$\frac{a...}{W} x$ / x 0
/80	/90	/: 0	/: 0	/: 0	/=0
Ss ≤ s -6r fl r	=	9	;	B	A777 777
Ont s -6r vs r	89	;	9	87	88: 77777
V s w6W r ty	8=	<	8	9;	8B A77 777
J -6K zfi	A	;	9	A	8A <77777
V w6Wz	8=	;	A	89	>: 77777
S ≤ 6T flv	89	:	>	=	87 >77777
S f6T ffi	87	=	:	A	88; 77777
Jy -6K x	89	<	>	88	; ; <77777
dw wfl tw6dv vfi sv	B	;	9	>	8: <77777
Y ± tw6Z t ≤ v	87	<	>	88	98 >77777
W wfl tw6Y ≤ vfi sv	<	9	8	;	: 777 777
Mw wfl tw6V tvfi sv	B	4	A	A	= >77777
<b>9798</b>	<b>89B</b>	<b>AA</b>	<b>B9</b>	<b>88E</b>	<b>8DC 877 777</b>

d fl tw6 ≤ tvC Ts ≤ Tw fi - s ≤ cw es s ≤ fvevysz6lz z a ≤ tvZ tv ≤ v r fl fzevflxry

**H7B dhf ngbdRI b**  
**Re c c kdXPj Xed**

**m** **H7BA** **c d i T i f**  
**jvx -** **d d m m 5B9AH B9BA**  
**d x- f e y- i x z w - Qwy x i xz y**  
**jw w j- w h- - y 4A89G5A8A9**

a.zx x x o fl	978E	978F	9797	9798
/80	/90	/:0	/:0	/<0
a-sy -	8	8	8	8
Ksv—	4	4	4	4
d+sts sy ≤	4	4	4	4
U fl	4	4	4	4
d +sts sy ≤	4	4	4	4
as≤s≤	8	8	8	8
e ±s	4	4	4	4
ds v±	4	4	4	4
es -s≤V6 fi-	4	4	4	4
d-sz -	8	8	8	8
T fi sy	8	8	8	8
d ±fl	8	8	8	8
d ±fl Ks s	4	4	4	4
as s ± e t sy	4	4	4	4
Ks	8	8	8	8
d Psv sy	4	4	4	4
J ±sfl Mw -	4	4	4	4
Ks f s s	4	4	4	4
V s ± sfl s	8	8	8	8
d-s ± sy	4	4	4	4
<b>jx x j... x</b>	<b>D</b>	<b>D</b>	<b>D</b>	<b>D</b>

d fl t w6d≤ tvC ae5a Rsv ±w s /aw w 0Lst s sy d± f y s 6ae4a≤ sflu:flv z .av v ≤3das ±flr L r flty

m  
jwx - HB7B

c l i U f S c  
l i d m m 5B9BA  
d x- f w c w i- x c w z a z f w  
c w j w w j- w h- - y 4A8A9

Y... i x f 6g l f i f i					
0 x i	f S ... a l f i n	i x 0 x x f i l f i i f i	a x a o f i l f i i f i	f x ..a x a o f i l f i i f i l f i f i	Y x p f i
/80	/90	/:0	/:0	/:0	/:0
Ss ≤ s -6r fl r	97	>	≠	9;	<b>CB7</b>
Ont s -6r vs r	<8	<A	; A=	8A	<b>BBB</b>
V s w6Wr ty	>9	>9	= 8	::	<b>D: D</b>
J -6K zfi	8B>	A:	<9=	9>	<b>DB7</b>
V w6Wvz	8:	<=	: =	8>	<b>: F:</b>
S ≤6T flv	A	A<	=B	8B	<b>CFC</b>
S f6T ffi	9	=	≠9	98	<b>C: B</b>
Jy -6K x	>	>8	<98	8=	<b>BAA</b>
dw wfl tw6dv vfi sv	4	A8	: >A	A	<b>: EC</b>
Y ± tw6Zt ≤v	4	>	; ≠	9	<b>ADE</b>
W wfl tw6Y ≤ vfi sv	4	<	< >	8	<b>BDB</b>
Mw wfl tw6Nvtvfi sv	4	: 8	≠8A	8	<b>C8F</b>
<b>9798</b>	<b>: D7</b>	<b>DFA</b>	<b>C ABC</b>	<b>8EE</b>	<b>D 78A</b>

d fl tw6 ≤ tvC ae5a Rsv ≤w s /aw w 0Lst s y d t f y s 6ae4a ≤ 9lu s flv z . av v ≤ 3 dz ≤ ffr L r fty

$\frac{m}{jwx} - HZ\bar{X}$

W g n p i U  
 U f S d m m 5  
 B9BA  
 U - - y w z P f w c - e z - i - w z  
 f w z x c j w w j - w h - - y 4A8A9

$\frac{0}{i} x$	$f \dots \dots xx \bar{6}n$	$f \dots yx xx \bar{d} \bar{f} i k$	$\frac{0}{i} x$	$f \dots yx xx \bar{d} \bar{f} i k$
$\frac{0}{i} x$	$T \dots \dots$	$d x$	$T \dots \dots$	$d x$
$\frac{0}{i} x$	$b$	$U$	$b$	$U$
$\frac{0}{i} x$	$/ x 6 \bar{f} i 0$	$/ x 6 \bar{f} i 0$	$/ x 6 \bar{f} i 0$	$/ x 6 \bar{f} i 0$
/80	/90	/:0	/:0	/:0
Ss ≤ s -6Tr fl r	8<9	<A7 99A A<B	887	8<A> 8 =7<
Ont s -6Pvs r	88B	9B; 99>B<B	88B	9>B; <X<=
V s w6W/ r ty	8A8	>: ; B7 A<=	89B	8A; 97=77=
J -6K zfi	8: >	<=7 9=> ; <8	8: ;	8> 8: B: 77
V w6W/ vz	888	; A>79=899	8; =	9B8; 9A A<<
S ≤6T flv	877	; A7: 9; B>9	87:	8A9 9>8 >9
S fi6T ffi	BA	: 99; B: 7AA	877	8B9: < : ; =
Jy -6K x	<	B9 B=>8=B	89:	9<9 9B: BB8
dw wfi t w6dv vfi sv	>9	: 7<: 8>=AB	8: 9	8B; = >: =A
Y ± t w6Zt ≤v	; <	87>= <=AB	BB	8: 9 8A8 <:
W wfi t w6Y ≤ vfi sv	<=	9B9 >9<777	B;	898 >> A77
Mw wfi t w6Vtvfi sv	=9	8<=: ; 8 8: B	89=	9: <: B; <9A
<b>9798</b>	<b>8 8EC</b>	<b>AA9: 7AC 779</b>	<b>8 A9A</b>	<b>9 A7DEEF C: D</b>

d fl t w6d ≤ tvC ae5a Rsv ≤v s /aw w 0Lst s > d t f y s 5a e t a ≤ s f l u : f l v x .av v ≤ 3 d s s f i r L r f t y



$\frac{m}{jwx} -$  H7B7D

R i Si 5S 5S 5 i i  
 U g f S n Wem B99F 6B9BA  
 j -U f w - 4f w - - 4b w - 4V z w z  
 S - yf fwy w - j Ubj x P 4A88E 5  
 A8A9

$jx$ $u fi$	$f..x x \theta fi$ $jyx$ $U fi$	$0..x x$ $Y fi$	$f... x / x \theta fi$ $jyx$ $U fi$	$0..x x$ $Y fi$	$1 2$ $j x$ $p fi$
/80	/90	/:0	/:0	/-0	/-0
977=	97A	97A	: ;=9	: ;8A	4
977>	9=	9=	<7<	; B: 9	4
977A	9<7	9<7	<: ::	; ;>A	4
977B	: 8:	: 8:	: < 8	: =>	: B9
9787	<9<	<9<	A: 9>	A 979	=>>
9788	>7;	>7;	8B < 9	8=; 77	88:
9789	>;	>;	9=; 9B	9: 9>B	=
978:	B7A	B7A	: 8 9>=	9>B7;	4
978;	8 997	8 997	; >9=9	; =B>	9 BA7
978<	8 9; >	8 9; >	=8 9: =	=9 BB=	<B>8
978=	8 <9	8 <9	>A 8=B	>A =8	: >8;
978>	8 <A	8 <A	>B: ; 7	A: A<7	8: ; 7
978A	8 <=	8 <=	A7 <B8	A: B89	4
978B	8 7=;	8 7=;	=8: 9A	=; =7B	98;
978B	=B	=B	9=A9:	9=; 7:	AA
9798	: B<	: B<	89 <A8	8: 8<=	9=



Vn" w@n" anor yM-" ff' ffr q anoy A84

jx u fi	0x x /a	03/fi	fi	lg 2	ax /	03/fi	lg 2	f	fx ..l	03	fi	lg 2
	0 x 6	c x 6	0 x 6	c x 6	0 x 6	c x 6	0 x 6	0 x 6	c x 6	0 x 6	c x 6	
	q fi	h fi	q fi	h fi	q fi	h fi	q fi	h fi	q fi	h fi	q fi	h fi
/80	/>0	/A0	/B0	/870	/880	/890						
977=	8>>7;	97 8; 8	: 7: B	87; >	8 89>	8 7A>						
977>	: >A7A	: == B	4	4	4	4						
977A	; <; B	: A=A<	4	8: B	4	4						
977B	9; ;7;	9A <<9	4	9: >=	4	89						
9787	<>7A:	=<: B>	4	B79	9B	4						
9788	8: =7: 8	8; 7 87A	8=	8 => <	4	9>						
9789	8A9: A8	8AB: ; 9	=7A	8 77>	4	4						
978:	97: 887	8B7 A=7	4	4	4	4						
978;	: 7: ; =	9BB => :	4	>7 8B:	4	4						
978<	; : B >>B	; ; ; 8AA	A 9; A	A: 7; 8	4	4						
978=	< 7 9A:	< : : <8	87 <:	B7 <77	4	4						
978>	<<A B=9	< =B>A	9A; 79	8B=BB>	4	4						
978A	<: 7B9	<<7 >><	A7 > <	999 7=7	4	4						
978B	:: : <A>	: <8: A8	== B	8; =7 <>	4	4						
978B	8; B; A7	8; B =8<	<: <	A8 >B7	4	4						
9798	B; 9B7	878 9=8	8 =8=	9A: <A	4	4						

d fl t w6d< tvC f <= av< vfw<ys s Ks<vs f vs s M50wv<=sv U fl ts< t=>6N 4Pv uzfl ru V fis r fl <= zfl Kz <= Z vr z fl f fl z

$\frac{m}{jwx} - HZBZ$

c d b i U d  
 m m f c b  
 d m m 5B9BA  
 d x- h- w V - - e y- jw w j- w  
 h- - y w Ww X - - d- jw w j- w  
 h- - y 4A8A9

Y... W x p	Y x p fi
/80	/90
ds s≤Tw.s.awfl w≤sz Mbswz Vstr fl≤v flfi vfl h≤ffflx flz	:9
Ts≤ Lsfl s d s Nz z Z tv	8A
Ts≤ Twfi szs≤ c rffgzffixvZ tv	⇐
Ts≤ Mws gzffixvZ tv	887
dwt± fsz dty≤fffi	87B
a ±wfl s a sffl Rvr ffy Mfl v	98
Y x φ fi	: AC

d fl t w6d≤ tvC M≤s T fl ≤s -vs≤Rex fl s ±s Tst s ses s ≤ fiewesyz 6Mefi fi flzr zdl rflu Sflvefir z dv zv≤uer r fl fi  
 evflxry cvxvft

$\frac{m}{jwx -}$  HZBZ

c l k f d  
 W d m m 5B9BA  
 d x- hwz i w Pyy z -e - w z  
 U- - y jw w j- w h- - y 4A8A9

i x a..... x p k o fi	Y x p fi	T ... .. b
/80	/90	/:0
awfi w≤sz M±wsz Tst s wses s≤ fwevsysz Vstr ffl≤ v fi vfi sver rfi ffevflxry cvxvft	4	4
Ksvs≤f szs V f±M±wsz /Kf V MD Lrur flf ryr WzffYvxr r .Lf WY/	4	4
d s s a z r v	8	AA38 OV
<b>Y x p fi</b>	<b>8</b>	

d flt w6d≤ tvC M±s T fl ≤s -vs≤Rk fls ±s Tst s wses s≤ fwevsysz 6Mfi fi fltr zfl rflu Sivesfir z dv zv sver rfi fi  
 evflxry cvxvft

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$\frac{m}{jwx} - HZB7G$

i i S E m d R  
 f f 8f m l  
 f d U CS m f  
 c d 5B9B9 B9BA  
 f-y-w-f-w P-z Do-w w z e - m k -7  
 Ww-R- wf -w z k -R - S j -bw B  
 c x i- jw w j- w h- - y 4A8A8 w z A8A9

Y... a... x x p U	9797			9798		
	bx 4x i fi	f.... x b fi	Y x p fi	bx 4x i fi	f.... x b fi	Y x p fi
/80	/90	/: 0	/; 0	/< 0	/= 0	/> 0
V wsy s≤s≤ewf w ≤ dwn f w f v M r f f f i ay ≤ f v . R r flu y ≤ f v /	>A3<	>: 39	DC37F	A<=	A; 3<	EB38
V wfl fi±ewf w ≤dwn f w Rr v M r f f f i ay ≤ f v . R r flu y ≤ f v /	<8B;	; : B;	ADFA	=<37	<93 9	BD39
V wsy s≤s≤T fl w f v M s f i v . a M s N v ff ≤ 2 Vr ≤ 5Y ≤ vs ≤ f 2 e r s f f i /	B3>8	A3>	E3F	⇒A<	A3 8	D3BE

d fl t w 6 ≤ tvC Kad3d w-d s f i t ± ≤ fl -V6 -s f v / d w s 0 6 l a d 3 d r z z z f l u s l v z 2 Y r z s i r f f i s z r t s i s i z d v

**BAB**  
Chapter

**09**

# KOPERASI DAN PERBANKAN

*Cooperative and Banking*

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**i Vg cVeRI Rg mVdgB**

**j TRWdXPb de j Ti**

- 74 Mn<sup>Ⓞ</sup> [r.x→.r.n°v<sup>°</sup> or.∴.z or... 85 Nnffs-.p→.r.nffr°n.r.tr<sup>°</sup>r.nffq  
qn.v. M<sup>°</sup> n° U→.r.n°v b°nun  
Ur py qn<sup>°</sup> Wr<sup>°</sup>r<sup>°</sup>t nu  
Uno .n<sup>Ⓞ</sup> an<sup>°</sup> n<sup>°</sup> yw ar<sup>°</sup>t nus
- 84 U→.r.n°v nqnyu onqn<sup>°</sup> °nun  
n<sup>°</sup>t or.n<sup>°</sup>tt-<sup>Ⓞ</sup>xn<sup>°</sup> -.n<sup>°</sup>t  
°r-.n<sup>°</sup>t n<sup>Ⓞ</sup> onqn<sup>°</sup> u x z  
x→.r.n°v qr<sup>°</sup>tn<sup>°</sup> z ryn<sup>°</sup>qn°xn<sup>°</sup>  
xrtv<sup>Ⓞ</sup> n or.qn°n.xn<sup>°</sup> .y.°v  
x→.r.n°v °rxnyx ° °ront nv  
tr.nxn<sup>°</sup> rx-<sup>°</sup>-z v .nx n<sup>Ⓞ</sup> n<sup>°</sup>t  
or.qn°n..n<sup>Ⓞ</sup> n°n° xrxry n.t.nn<sup>°</sup> 4
- 94 'v<sup>°</sup>n un°y °nun x→.r.n°v : 5 Xrff .-.sff-s p→.r.nffr r v<sup>°</sup>t .-°°  
z r...nxn<sup>°</sup> .r<sup>°</sup>qn<sup>°</sup>n<sup>Ⓞ</sup> x→.r.n°v  
n<sup>°</sup>t qv r.-yru qnyz °n<sup>Ⓞ</sup> n<sup>Ⓞ</sup> u  
o x qv .n<sup>°</sup>tv qr<sup>°</sup>tn<sup>°</sup> ovn n2  
.r<sup>°</sup> ° n<sup>Ⓞ</sup> 2 qn<sup>°</sup> xr nwon<sup>°</sup>  
yn<sup>°</sup> n n<sup>Ⓞ</sup>.z.n° x .nwx qnyz  
n<sup>Ⓞ</sup> u o x n<sup>°</sup>t or.∴n<sup>°</sup>tx n<sup>Ⓞ</sup> 4
- : 4 Mn<sup>Ⓞ</sup> °n<sup>Ⓞ</sup>ax .r.an<sup>°</sup>xn<sup>°</sup> ; 5 Ln<sup>°</sup>xv<sup>°</sup>t °fffr<sup>°</sup>fp°n.r.-offv<sup>°</sup>rqs.-z  
or.∴.z or... qn.v.  
Y<sup>Ⓞ</sup>.v<sup>Ⓞ</sup> Tn<sup>°</sup>n Ur n<sup>°</sup>tn<sup>°</sup> 4  
ffur Pv<sup>°</sup>n<sup>°</sup>pn<sup>°</sup>y 'r...spr° Kfffr-.vff 5
- ; 4 Un<sup>°</sup>@... on<sup>°</sup>x @.qv.v. qn.v. < 5 Ln<sup>°</sup>x -sspr° p<sup>°</sup>-°vff -s o.n<sup>°</sup>pu  
Un<sup>°</sup>@... Lnon<sup>°</sup>t .UL/2  
Un<sup>°</sup>@... Lnon<sup>°</sup>t [rz on<sup>°</sup>@  
.UL[/2 qn<sup>°</sup> Un<sup>°</sup>@... Un<sup>°</sup> .UU/4  
-sspr /UMB °ffo o.n<sup>°</sup>pu -sspr  
/UM 0 n<sup>°</sup>q Mn<sup>°</sup>u -sspr° 5
- < 4 bn<sup>°</sup>t or.r.qn..qnyz n.Ⓞ°rz .v<sup>Ⓞ</sup> = 5 aur o.-nq z -<sup>°</sup>r /W80 v<sup>°</sup>  
.W7/ nqnyu xr nwon<sup>°</sup> °v<sup>Ⓞ</sup>@z  
z -<sup>°</sup>r@... n<sup>°</sup>t @.qv.v. n<sup>Ⓞ</sup>°  
n<sup>°</sup>t xn.Ⓞy qn<sup>°</sup> n<sup>°</sup>t tvny4  
°rpsv ff.z. v<sup>°</sup> ynowvffr° -s ffur  
z -<sup>°</sup>rff... ° °ffz p<sup>°</sup>-°vff<sup>°</sup>t -s  
pffi.r.<sup>°</sup>p n<sup>°</sup>q qrz n<sup>°</sup>q qr.-°vff 5
- = 4 bn<sup>°</sup>t or.r.qn..qnyz n.Ⓞy n° .W8/ A5 aur o.-nq z -<sup>°</sup>r /W90 v<sup>°</sup> n  
n<sup>Ⓞ</sup> yx vq<sup>Ⓞ</sup> .r.rx-<sup>°</sup>-z v<sup>°</sup>  
o.-nqr.ff.z. -..q-z r °ffpy<sup>°</sup> ffuqvf



nqnyu xr nwon" °v@z z -"r@...  
 n"t @.q.v.v.n@° W72 n"t x n°v  
 qn" ° .n@or.un.t.n°ryv° °nunz 4

v ynowffir° -sffir z -"rffh...° °ffz  
 p-"°vff/t W83 "ffn°v z -"r 3  
 n"q °rpfvffir° -ffir..ffn" °un.r°5

A4 bn"t xn.@ny@.q.v.v.n@° n"t xr.@°  
 qn" n"t y-tnz n"t or.ynx 2  
 @qnx @.z.n° x n"t xn° .nqn  
 Un"@..[r.ar"qnun.nn" qn" Un°  
 Xrt.n.n.U[UX/qn" on" x z z 4

B5 Mffi.r."p p-"°vff -s yt ny on"x  
 "-ff° n"q p-v° r pyffqv°t pn°u  
 v° ffir t- r."z r"ff ffir°ffi..  
 -sspr° n"q p-z z r.pny on"x°5

B4 bn"t t.v.ny @.q.v.v.n@° .rxr" v°t  
 t.v.-2 xv.v n" n"t2 °v .n"n"  
 or.wm"txn2qn" @o "tn" qnyz  
 ...vnu n"t ° qnu wm@u nx@2  
 n"t°ry...u" n z r...nxn"  
 °v .n"n" .r"q q x qnyz  
 ...vnu .nqn °v@z z -"r@.4.

C5 Nrz n"q qr.-°vfp-z .v.r° pffi.r."ff  
 npp-fff ff3 ffa."°sr.3.z nffir.q ffz r3  
 n"q °n v°t°qr.-°vff v° .ffvnu3uryq  
 o .r.°vqr"ff v° ffir z -"rffh...° °ffz 5

764 bn"t x n°v@.q.v.v.n@° °v .n"n"  
 or.wm"txn qn" @o "tn"  
 .r"q q x .nqn on"x z z 2  
 onx qnyz ...vnu z n . " ny @  
 n°v°t4

875 ] ffn°v z -"r p-"°vff -s ffz r  
 n"q °n v°t°qr.-°vff v° .ffvnu  
 n"q s-.rx" pffi.r."p uryq o  
 .r.°vqr"ff v° p-z z r.pny on"x°5

m  
jwx - I A

c d f d d  
m m 5B9AH6B9BA  
d x- R - w - Q - k x i xz y  
jw w j- w h- - y 4A89G5A8A9

a. zx x x o fl	978E	978F	9797	9798
/80	/90	/:0	/:0	/:0
a-sy -	8;	8;	8;	8A
Ksv—	99	99	9;	9;
d-tsts-y ≤	8=	8>	8>	8>
U fl	A	A	B	B
d -ts-y ≤	:	:	:	:
as-s-s ≤	BB	878	87:	87>
e ±s	88	88	88	88
ds v±	9=	9>	9>	9A
es -s≤Wb ft	9<	9<	9<	9<
d-sz -	=	=	=	=
T fs-y	9;	9;	9;	9<
d -sfl	8<	8=	8=	8=
d -sfl Ks s	8A	8A	8A	8B
as s t e t-y	:	:	;	;
Ks	9=	9=	9=	9=
d Psv -y	B	B	B	B
J -sfl Mw -	89	89	89	89
Ks f s s	9	9	9	9
V s-y sfl s	8<	8<	8<	8<
d-s-y -y	8<	8<	8<	8<
<b>jx x j... x</b>	<b>:CF</b>	<b>:DA</b>	<b>:DF</b>	<b>:F8</b>

d flt wéd wC M-s T ws -f szs Tw-fvs≤V w-s-y-sz Tst s w-s-s s≤ f-w-s-y-sz GZ tv s-w-s v r z v w-s dfr fff flu Wwuz fi  
Of v zv s-ver rfl f-fvtxry cvxvft

m  
jvx - l B

c d f c d  
d m m 1 5B9BA  
d x- R - w - Q - k x j - w z  
i xz y jw w j- w h- - y 0 14A8A9

a.zx x x o fl		Y... φ			
f - ... l		a W	...	i x f x ofi fi h fi	Yx x o
/80		/90	/:0	/:0	/<0
a-sy -	<	87	:	4	
Ksv—	8:	B	8	8	
d+sts≤	89	;	8	4	
U fl	<	:	4	8	
d +sts≤	4	:	4	4	
as≤s≤	9:	≥	;	=	
e ±s	>	;	4	4	
ds v±	=	8B	9	8	
es -s≤V6 fi-	88	88	:	4	
d-sz -	;	9	4	4	
T fi≤	8;	87	8	4	
d ±fl	<	88	4	4	
d ±fl Ks s	>	B	:	4	
as s t e t≤	:	4	8	4	
Ks	87	8<	8	4	
d Psv ≤	=	:	4	4	
J ≤sfl Mw -	>	:	9	4	
Ks f s s	8	8	4	4	
V s≤v sfl s	9	8:	4	4	
d-s≤ ≤	=	B	4	4	
<b>jx x j... x</b>	<b>8AD</b>	<b>98:</b>	<b>99</b>	<b>F</b>	

d fltwéd wC M≤ T ws -f szs Twufvs≤V wvsyszTst s wses s≤ fwevsyz6Z tv sws≤ v r z v w≤ dfi rffi flu Wwuz fi  
Of v zv sner rfi fzevflxrycvxvft

$\frac{m}{jwx - } | \tau$

c d f d n d  
 l d d m m 1 2  
**B9BA**  
 d x- R - w -Q - k x R w-  
 Q - V w z Py i w 0 148A9

a... W fi V c	k x xa ..x	i x 60 fi	Y x p fi
/80	/90	/:0	/:0
T ws -f ≤ Mws	=	89	8E
T ws -aw s ≤ s ≤	8<	A7	FB
T ws -a v w ≤ s z ewfl wRy ≤ w-s	4	4	4
T ws -a ≤ ±aws ≤ w ≤	;	B	8:
T ws -Ts s ≤	;	8;	8E
T ws -j ± s ≤ M s	8	4	8
T ws -Tw fi-s ≤	4	8	8
T ws -dwt s f szs	98	>A	FF
T ws -as s	4	;	A
T ws -j ± s ≤ M s	8	A	F
T ws -awy s -Wyw-	89	9;	:C
T ws -U- ±awwss ≤	4	4	4
T ws -h s ≤ s	4	:	:
T ws -h ww s sfl s	4	9	9
T ws -a w st -	4	4	4
T ws -L s ≤ s	4	<	B
T ws -dwt ± w	4	4	4
T ws -a v ± -	A	8	F
T ws -dfl s ≤ a ≤ sfl	8>	=	9:
T ws -S s	8	4	8
T ws -aw ± s ≤	;	A	89
T ws -W s s ≤	8;	97	:A
T ws -aww s s ≤	8	:	A



Vn" w@n" anor ySM- " ff' ffr q anoy B4

a... W fi	k x xa ..x V c	i x 60 fi N U	j -x N j U	Y x p fi
/80		/90	/: 0	/: 0
T ws -V szs - s		4	9	9
T ws -gwws≤		4	8	8
T ws -j svs s≤f vs s		8	4	8
<b>Y x p fi</b>		<b>887</b>	<b>9E8</b>	<b>: F8</b>

d flt w6d uC Ms T ws -f szs Twifvs≤V wswsyz Tst s wses s≤ ffwswszGZ tv sM≤ v r z v w≤ dfi rffi flu Wwuz fi  
 Ofv zv sver rfi fzevixry cvxvlt

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$\frac{m}{jwx} - I \mathcal{D}$

c d S f d S  
 d m m 5B9AI B9B9  
 d x- Qw e y-x V Qw jw w j- w  
 h- - y 4A89Hw z A8A8

		978F			
a...	0x	af	aP	aPf	aa
c	Vfi				
/80		/90	/:0	/:0	/:<0
Ks<±f fl fl T ≤ w≤ -s f6Mfi vfi z&lr fff Lr vu Mfi fi v t&r fff		4	9	A	B
Ks<±aw w &dr vLr fff		4	8	=	B
Ks<±awfl ts &y ≤ ≤ M6wsz6cvxz&lr fff Q≤v ffi vfi Lr fff		4	8	8	4
Ks<±d s s&a zr vLr fff		4	4	8	4
Ks<±j &y &P≤vzx fl Lr fff		4	4	4	4
Ks<±f fl fl d s -sz&dyr z&Lr vu Mfi v t&r fff Lr fff		4	4	4	4
Ks<±d s s W6 -s f&a zr vYr z&lr fff		4	4	4	4
Ks<±awfl ts &y ≤ ≤ M6wsz6cvxz&lr fff Q≤v ffi vfi Lr fff		4	4	4	4

Vn" w@n" anor ySM- " ff' ff' q anoy B4

		9797			
a...	0x	af	aP	aPf	aa
c	Vfi				
/80		/=0	/>0	/870	/880
Ks ≤ f fl fl T ≤ w ≤ - s f M fl v fl z fl r ff	Lr vu M fl fi v tr fl r fl ff	4	8	>	B
Ks ≤ taw w Gdr v Lr fl ff		4	8	=	B
Ks ≤ taw fl ts y s ≤ M w sz G v x z fl r ff	Q ≤ v fl fi v fl Lr fl ff	4	4	4	4
Ks ≤ t d s s G a z r v Lr fl ff		4	4	8	4
Ks ≤ t j y G P ≤ v x fl Lr fl ff		4	4	4	4
Ks ≤ f fl fl d s - sz G d yr z r 3 Lr vu M fl v tr fl ff	Lr fl ff	4	4	4	4
Ks ≤ t d s s W b - s f G a z r v Yr z fl r fl r fl ff		4	4	4	4
Ks ≤ taw fl ts y s ≤ M w sz G v x z fl r ff	Q ≤ v fl fi v fl Lr fl ff	4	4	4	4

Ls s s G v s v C Ta F Ts ≤ a s G M fl r fl tv  
 T L F Ts ≤ L s ts y G l r fl ty Z tv  
 T L F Ts ≤ L s ts y aw fl ts ≤ G d ≤ z l x L r fl ty Z tv  
 T T F Ts ≤ Ts G M y Z tv  
 d fl tw G d s tv C Y - s s T w s y s ≤ P a r fl r fl r fl v z v K y s z s v fl u s l v x

$\frac{m}{jwx} - I \text{ E}$

i i S n f l  
 V d m m 1 25B9B9  
 e w z b w R - yw Qw x Ty y  
 i-y jw w j- w h- - y 0 w 14A8A8

i ... S	f
a o	k fi
/80	/90
f x x 0...x x bx x x k x x6 h fi fle fik	
aw s≤s≤3awt s≤3vs≤Twe s≤s≤Kx z ffi v 2R fi zix2r flu P≤v	98>: =7 97; > A
aw→s≤s≤6z yv	8=887; <<: 7A
aw sfi ts≤ys≤vs≤awysyfis≤Wzix r flu b r zix	4
Rv -awey fiszs≤a stv zix sflu	8<8=B A7=: AA
U- →3Ps 3vs≤J-6offi z z 2Qr 2rflu h r v	4
T ≤ ±6Mfi t zfi	< <A7 8BB <7
awvsys≤ys≤Kws vs≤Nwms≤h y sfi r rfi r flu cv r zfi ruv	9 <A>9>8 <8A 778
aw≤vw→s≤J±fi vs -vs≤V s≤s≤V ≤ fi 6Ktt sfi fi sur zfi r flu P≤su dv zv Kt z z zv	; : AA: >><A8
es≤ s →awy vs≤ys≤3vs≤T fi ≤s≤ 6erfi ≤ r zfi 2h r vy≤ zix 2 r flu Mfi fi fizr zfi	< 9<9 A; A 9=
aws≤s s Tw s≤ys≤6z r rfi r rfi v fi vu z zv	4
cv s fi N s wbf szs aw w ss≤3vs≤Ss s aw szss≤c v r fi r v 2L ziv 2 Z flu yz 2r flu L ziv dv zv	8: B=B BA; <7A
Jvfi ≤- s -awfi w≤szs≤3aw szs≤s≤3vs≤Ss fi -s≤d -sfi s.±6 Q≤v ffi vfi Kufi ziz r zfi 2Nwvfi v 2r flu Mfi ffs d z r rfi v t z	4
Ss s awsv→s≤60u tr zfi	<87>=B<A7;
Ss s Twvzs s≤vs≤Twy s s≤d -s fR fi r fi Rv r fyi r flu d z r ffi ≤ffkt z z zv	<: 77 =BB 7: 8
Ss s Twfi s s s s s≤3d -sfi vs s 3Q± s≤3vs≤aw s≤ys≤fs≤s s 6 Mfi fi fiz 2d z z z ffi r r fi v r r z fi vfi 2r flu Z yv sflu z r r fi v zv	: 8 >99; B>A>7
Ss s aw s≤ys≤ s≤y V wfs s≤c fi sz es y s 6 sflu z r r fi v zv y z y dv v R≤ vy sfi	A⇒A9=B=:





Vn" w@n" anor yM- " ff' ff q anoy B4

i ... S a o	f k fi
/80	/90
Ksvs≤R≤w≤ -s fvs≤Ksvs≤Nt s R≤w≤ -s fls≤s s69 v fir zfirffi Kxvft rfluZ yv O r Kxvft fl v fir zfirffi	4
Twy-s s≤ s y twfi fl .wfs ts s s≤s s6L zlv Kt z z z v y z y r v fl≤ tffr ffuv flvu	4
f x x a..x-x0 x bx x x k x x6 h fi j e fi k	A 9F8 899 978 FAD

d fl tw6d≤ tvC Y -s S s Tw s s s≤s s69 v fir zfirffi zlv K y z s s fl u s l v z

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$\frac{m}{jwx - 1}$

c k i i S n  
 f S l S d m  
 m 5B9B9  
 d x- Pyy w z e w z b w  
 R - yw Qw x c w z Q - iyw-  
 jw w j- w h- - y 4A8A8

$\frac{0}{i} x$	$h \dots u$	$d$
/80	/90	/:0
Ss ≤ s -6r fl r	97>=	99=
Qut s -6r vs r	97:7	9:89
V s w6Wr ty	8 BAA	9: B<
J -6K zfi	8 B=B	9;9>
V w6Wvz	8 B;9	9;;9
S ≤6T flv	8 B9<	9;>7
S f6T ffi	8 B97	9;B9
Jy -6K x	8 B7:	9 <8:
dw wfl t w6dv vfi sv	8 AB;	9 <<9
Y ± t w6Zt ≤v	8 A>7	9 <A;
W wfl t w6Y ≤vfi sv	8 A: =	9 = 8
Mw wfl t w6Nvtvfi sv	8 A87	9 = 9

Vn" w@n" anor y5M- " ff' ff q anoy B4:

0 x i	f f x x k fi h fi	d kc ac
/80	/; 0	/< 0
Ss ≤ s -6r fl r	9>8 >>7 >; B <AB	: 7: >A >B7 <9
Out s -6r vs r	9=; ; AAA: 8=B	: 89 <; BB>: B8
V s w6Wr ty	9-8 ; ; 8: 88 <=A	: ; ; 79: <; ; =8
J -6K zfi	9<>AAB B: >=;	: <7: 7>898 A; 7
V w6Wvz	9< >B8 A=8 ; >=	: < =B8 7>A A: <
S ≤6T flv	9<7 8=8 8<A: 8	: <7 =; B8 7: =
S -6T ffi	9; >; ; 7 = B 89;	: = <9> < <9=
Jy -6K x	9; ; <8: : 8 799	: =A <9>; 9; =77
dw wfl tw6dv vfi sv	9; 9: 89 7B>B<=	: >; ; =8 A8AB9A
Y ± tw6Zt ≤v	9: B 7B>98 = <<9	: A8 A=7 BA: >7;
W wfl tw6Y ≤vfi sv	9: <A7: >7; 8BB	: AA <99 98; 99=
Mw wfl tw6Nvtvfi sv	9: 7 = 8; =A 8<A	: B: B< 879 8: 7

d fl tw6 ≤ tvC Y -s S s Tw s > s < 6r fl r fl v zv K y < z ≤ v fl u < v x

$\frac{m}{jwx - 17}$

Y i S n d m 5U 5  
 B9B9  
 d x- Pyy wze wz iw 4j -  
 S- 4wz S- wz S- R - yw Qw  
 jw w j- w h- - y 48A8

$\frac{0}{i} x$	$jxy \quad x \quad 6fi \quad Y$	$h \dots$	$\frac{d}{k} \quad \frac{x}{fi} \quad /h \quad 0$
/80	/90	/:0	
S ≤ s -6r fl r	8B: B=A	8; 7B A9<; A: A97	
Ont s -6vs r	8B: : A7	8:: >=<7A9;;	
V s w6Wr ty	8B: 89A	8 <A: 9=B BA7 A7;	
J -6K zfi	8B: 7B9	8;; >9B>>79 A>9	
V w6Wvz	8B9 777	8 ⇒ 8 79A 7B: B=A	
S ≤6T flv	8B9 7: =	8 ⇒<>>A >A<; AA	
S fi6T ffi	8B9 B=7	8 ⇒9 78<B; 8 8>9	
Jy -6K x	8B; B8=	8 =B>8; ><B7; 9A	
dw wfi t w6dv vfi sv	8B=77A	8 ⇒8 7=<B<=7 <=	
Y ± t w6Zt ≤v	8B=<9	8 =BB 8> 9: A 7AA	
W wfi t w6Y ≤vfi sv	8BB: A7	8 =8A BB>>=B: BAA	
Mw wfi t w6Nvtvfi sv	97B 7; 7	8 A; ; 8B<<8 777	

Vn" w@n" anor ySM- " ff' ff' q anoy B4

$0 \ x$ $i$	$R... \ \phi \ Y$	$h.....$ $U$	$d \ x$ $k \ fi \ /h \ 0$
/80		/;0	/<0
Ss ≤ s -6r fl r		:: 89	<9=89A777777
Ont s -6r vs r		:: A;	<A99<9777777
V s w6Wr ty		:: ;97	<ABA=777777
J -6K zfi		:: B=	<A; :: ; 777777
V w6Wvz		:: ; ; ;	=97>777777
S ≤6T flv		:: >A	=898=A777777
S fi6T ffi		:: AAA	=8A; =A777777
Jy -6K x		:: B89	=9: : <9777777
dw wfi tw6dv vfi sv		:: >=	=9<7; ; 777777
Y ± tw6Zt ≤v		:: =B=	=8B9=777777
W wfi tw6Y ≤vfi sv		:: =A;	=9BB7; 777777
Mw wfi tw6Nvtvfi sv		:: =>	=; ; ; 777777



Vn" w@n" anor yM- " ff' ffr q anoy B4

$\frac{0}{i}$	$U$	$\frac{d}{k}$
$\frac{1}{80}$	$\frac{1}{=0}$	$\frac{1}{>0}$
$S \leq s$	$; 9B=$	$8 > 9 = < B: B = 7 8; ;$
$0 \leq t$	$; 8 < 9$	$8 8 8 7 > B 8 : 9 8 : A A$
$V \leq w$	$; < 8 9$	$8 : ; = ; 7 7 \leq A B \leq$
$J \leq K$	$; 9B=$	$8 B > ; = 7 9 < A = 7$
$V \leq w$	$; : 9 7$	$8 = 9 = ; B 8 : ; B : 8 9$
$S \leq 6 T$	$; 9 = 7$	$8 A = < 9 > A 9 B : = 8 9$
$S \leq 6 T$	$: B A ;$	$8 8 8 > > B < < B 7 9 : 9$
$J y$	$: A < 9$	$8 = > < 7 = > < A 9 8 =$
$d w$	$: > 8 9$	$9 8 < 9 ; ; A 9 : > 8 9$
$Y \pm t w$	$: B A ;$	$9 7 9 8 = 9 ; < ; = 8 =$
$W$	$; 7 9 7$	$8 A > ; : : B = A 9 : = 7$
$M w$	$: ; B 9$	$: < < 9 7 9 ; 9 7 9 8 9$

d fl t w 6 d ≤ t v C Y - s S s T w s y s ≤ 6 2 1 r f l t z f f i v z v K y ≤ z ≤ v f l u ≤ s i v x



**BAB**  
Chapter

**10**

# PENGELUARAN PENDUDUK

*Population Expenditure*

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i Vg cVeRI Rg mVdgB

j TRWdXPb de j Ti

74 Urt vn<sup>Ⓞ</sup>                      • r"t z • yn"  
 qn<sup>Ⓞ</sup>    °-°vny qn"    rx-"-z v  
 qvnx<sup>°</sup>n<sup>°</sup> nxn"    °rpn.n    ..Ⓞ  
 -yru K[ ' z ryny v ° ..rv °-°vny  
 rx-"-z v    "n°v-" ny    . ' °r" n°/4

85 ' -pv-rp-"-z v    qnfh p-yr pffr-"  
 npffr vfr °    n.r.    pn..x.q    -fff  
 .rt ffn.y. o    für L[ '4 fhff' ffp°  
 S' q-"r°vn fū.:-ff u für Xnffr-" ny  
 ' -pv-rp-"-z v    ' ffr.r    /' ffr" n°05

84 ' rwx Ⓞu " 8677 °nz • nvqr"tn"  
 867: 2    • r"t z • yn"    qn<sup>Ⓞ</sup>  
 ' °r" n° x-"° z °v • r"try n.n"  
 ..z nu    Ⓞ"tt n qvnx<sup>°</sup>n<sup>°</sup> nxn"  
 °rpn.n    Ⓞv. yn" n° 4 W ynv Ⓞu "  
 867;    • r"t z • yn"    qn<sup>Ⓞ</sup>  
 ' °r" n° qvnx<sup>°</sup>n<sup>°</sup> nxn"    q n xny  
 qnyz    °rⓄu "2 nvⓄ    • nqn  
 o yn"    Wn.r.Ⓞ qn"    ' r.Ⓞz or .4.

95 ' v<sup>pr</sup> 9788 ff 978; 3 ' ffr" n°  
 qnfh p-yr pffr-" -s u-ffru-yq  
 p-" °ffz • ffr-" 6r • r" qvfffr.r.  
 n°    p-" qffpff q    " ffr.ff .y.5  
 ' ffr.ff' t v' 978<3 p-yr pff' t -s  
 qnfh ' ffr" n° pn.... -fff ff vpr n  
 rn.3. v' Wn.pu n" q ' r. ffz or .5.

94 Mn<sup>Ⓞ</sup>    un°y    • r" pnpnun"  
 ' °r" n° Wn.r.Ⓞ qn• nⓄ qv<sup>n</sup>wkn"  
 " Ⓞx    Ⓞ' t xnⓄ    " n°v-" ny2  
 • .. v°v2    qn"    xno • nⓄ" 5  
 x-Ⓞ2 °rqn"txn"    " Ⓞx qn<sup>Ⓞ</sup>  
 un°y    ' °r" n°    ' r.Ⓞz or...  
 un" n    qn• nⓄ qv<sup>n</sup>wkn"    " Ⓞx  
 Ⓞ' t xnⓄ    " n°v-" ny qn"    • .. v°v4

: 5 aur .r:ffiff s.-z ' ffr" n° qnfh  
 p-yr pffr-" v' Wn.pu pn" or  
 • .r:°r" ff q -" " nfr-" nyβ • .. v' pnyβ  
 n" q .rt r" p Ⓞ ffr' v<sup>n</sup> nyff y ry  
 r' ffz nff3 uvr v' ' r. ffz or...  
 pn" or qv°rz v' nff q -" y s-..ffir  
 " nfr-" ny n" q • .. v' pny y ry5

: 4 Mn<sup>Ⓞ</sup>    x-"° z °v r"try n.n"  
 n"t    qv z • yxn"    • nqn  
 ' °r" n°    Wn.r.Ⓞ    qvont v  
 z r" wqv q n xry-z • -x2 nvⓄ  
 z nxn" n"    qn" o xn" z nxn" n" 4  
 T z ynu    x-z -qv<sup>Ⓞ</sup>°    z nxn" n"  
 °ron" nx    7=:    x-z -qv<sup>Ⓞ</sup>4  
 [r"t z • yn"    qn<sup>Ⓞ</sup> xry-z • -x  
 z nxn" n"    z ryv    Ⓞ on" nx" n  
 x-z -qv<sup>Ⓞ</sup>°    n"t    qv-"° z °v  
 or°r.Ⓞ    " ynv • r"try n.n" n4

; 5 aur    p-" °ffz • ffr-" 6r • r" qvfffr.  
 qnfh p-yr pff q v' Wn.pu ' ffr" n°  
 n.r. qv vqr q v' ff ff - t..ff' °3  
 "nz ry s--q n" q "-° 4--q5 aur  
 " ffz or...ss--qp-z z -qvff n.r.8A;  
 p-z z -qvffr°5aur s--q t..ff' qnfh  
 p-yr pffr-" v' pffqr° " ffr" fff n" q  
 nyffr -s p-z z -qvffr° p-" °ffz rq5

; 4 [r"t z . yn" qn@. nqn° ront vn" or°n..xry-z . -x o xn" z nxn"n" un" nz r"pnx . "yvn° r"try .n" on.n"t n"t qv-° z °vXrp nyv oror.n. n w"v on.n"t @. @" © n"t qv z . yxn" x n" @@" n2 °r.r.@ y°@x2 nv.2. tn°2 qn" onun" onxn... z v° nx .KKW/4

<5 Nnffh p-yr pff- " -" z -°ffj " -" s--q t.-ffh° p- r... -"y ffir nyffr -s r . r"qvffir. p-°ffz rq r pr° ff s...pr. ffv° p-z z -qvffr° pn" ny°- p-yr pff q vff "ffn" ffff 3 °ffpu n° ffir ffir -s ry pffv pff 3 nff.3. tn°3 n"q sffry -y /LLW05

<4 \_rsr.r."°v nx© ° ..rv n"t qt "nxn" nqnyu °rynz n °rz v°tt @.nxuv.. "©x x-°° z °vz nxn"n" qn" °ro yn" n@ °r@u " @.nxuv.. "©x x-°° z °v o xn" z nxn"n"4

=5 aur °ffi.r ffz r .rsr.r."pr . r.v-q v° . r. v-fff rrx ors-.r.r" ffz r.nffr-° qnff s-... s-q p-°ffz . ff-" 5

=4 Mh@ xr@. :rqvn" x-°° z °v . n"tn" . r...xn° @ or. :. z or... qn.v. . r.uv° "tn" Xr.npn Knun" Wnxn"n" .XKW/ v°q-"r°vn2 un°y xr.w° °nz n n" @.n Knqn" [ °n© ' @°@x qn" Urz r" @.xn" [r.@°vn"4

A5 Nnffh -" ffir n nyvnyvff -s . r... pn° vff s--q p-°ffz . ff-" n.r.s.-z ffir S'q-"r°vn" P--q Lnyn"pr ' urrff p-z . ffff q o ffir Ll'4 fffv°ffp° S'q-"r°vn v° p-yvno-.nffr-° vff ffir Wv°ff.. -s Kt.v°ffvffir5

A4 Wr@qr n"t qv nxnv "©x . r" ° "n" XKW or.:.r q-z n" . nqn o x ..wxn" n"t qv@.av@n" -y u -.tn"v°v . n"tn" °rq "vn2 nv© P--q Kt.v°ffvffir. Y.t.n"v nffr-" /PKY05

B5 aur PKY z rffv-q v° nq-° ff q ff p-z . ffff ffir P--q Lnyn"pr ' urrff

B4 [r" rqvn" . n"tn" qnyz "rtr.v. nqnyu . :.q x qnyz "rtr.v. qv@z onu qr"tn" . r...onun" °©x qn" v° -... qv .n"tv qr"tn" rx° - .4.

C5 N-z r°ffp s--q n nyvnyvff v° qrsv°rq n° q-z r°ffp . :.qffpffr-° . yff pun"tr° v° °ffpx n"q v° . -.ff z v°ff r . -.ff5

764 Ur@. :rqvn" . n"tn" "©x qv-°° z °v . r" q q x @.y.ou qnu y qv .n"tvqr"tn" ontvn"

875 S' p-z . v°t qnffh-" q-z r°ffps--q n nyvnyvff 3ffir °un.r.-s . :.qffpffr-° s-... °rrq°3 n°ff3 .r.°qffny°3

• :-q x°v n"t qvt "nxn"  
 "©x ovov z nxn"n" @.:.nx2  
 v q °@v qn" n"t @.pr pr.4.

n"v ny srrq°3 n"q v qffffvay  
 ffr n.r. sv:ff ffxr" v ff npp-ff' f6

774 Ur@.:rqvn" • n"tn" • r...xn• v  
 nqnyu xr@.:rqvn" • n"tn"  
 qvntvqr"tn" wz ynu • r"q q x  
 • r.@ "tnun" @u "4Ur@.:rqvn"  
 • n"tn" • r...xn• v ovn qnyz  
 or"©x x n"©z z n • " "° ...  
 tvv nv xny- .v • :-@v 2 qn"  
 yz nx4

885 [r...pn• vfh s--q n nvnovff v  
 ff-fhy s--q n nvnovff qv vqr q o  
 "ffz or...s • -> ffynff-" z vq rn.5.Sf  
 v • .r.°r"ff q v ff.z. ° -s "ffn"ffff  
 n° ryy n° "ffffv."ffp-"ff" fB°ffpu n°  
 pny-.v.°3. :-ff v°3n"q snff5

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$\frac{Y}{U} - A97A$  i k 6 i d S  
 f d d d m  
 m 5B9AB 6B9BA  
 f - y - w - P - w - - Rw wc T - z - x  
 R z V j w w j - w h - - y 4A89A 5A8A9

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d fl t w6d≤ tvC Kad3d w-d sfin± ≤ fl -V6 -sfv/d wes 06L ad3d r z z 9lu≤lv x 2Yr z 5lr ffi≤zst≤fi≤fi z d v



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m  
j wx - A97A

k &k i d l f  
d d 1 2 d m  
m 5B9B9 B9BA  
c P - w - T - z - - R w wx R z  
V j w w j- w h- - y 0 w 1A8A8 w z  
A8A9

a... W	a - x c	9797	9798
/80		/90	/:0
<b>c x x x &amp;</b>		<b>AE: A7F</b>	<b>B: F B: D</b>
asv-asv-s<W vr ffi		A; ::;	A: =>
f fl t 4f fl t s <e sv		: 9<	<B<A
Ris <f vs <yl fl <l ws <y Pzy <dy zi 5M <fi fi <f d zu <dy vr ffi		<=>	>A <A9
M <y <W vr		B: 8:	87 A8>
evfi vs <d 60x rflu Wzffi		99: =>	9>: =A
ds 4ds s <g vx r s ffi		: <BA9	; 9 > 8
Tsus <y 4T sus <y s <W vx fi v		; <88	<; AA
K sz 4K sz s <P z		97 <A7	97 < 9
V <s <vs <T w s 6Z ffi fl u M <f		8 <7 <	8B7; A
Kszs <V s <s <fl s <lv v rxv d		88; <	8: A8>
K fl t 4K fl t s <f z v		=<=>	>>A7
Kszs <V s <s <ls <ls 6Z yv P <su 9ix vu z ffi		: B <	; 989
V s <s <vs <V <fl s <sv <v r vu P <su rflu Lv v rxv		897: 7:	89A =>
c < <vs <evfi ts <s 6N <v v rflu <rtt <		>B A9 <	B7 AA7
<b>O x c x x x &amp; Ab</b>		<b>: DF AC:</b>	<b>: C: D: 9</b>
aw fl szs <vs <ls <f s c fl sz es <ys <R <s zix rflu R < vy <ffi Pr t z fi v		8; 99=>	999 >8B
J <vs Ks s <y vs <ls 6Q <su rflu dv z v		88; 77B	899 >9:
as <s <J fi Ts <vs <e Tw s fi 6M <fi y z fi x 2P <= vr 2rflu Rvr uxvr		9B <>>	>9: ;
Ks s <y eszs <ls fl s 6N r s ffi Q <su		; ABB =	; 9: B
as <Ba <y s <vs <J s <er v rflu 9l r fltv		: 7: >A	:: <
Tw w fi s <aw s vs <f sus 6l w s y - <ar z rflu M v fi <fi z		8; 9; 7	=; A8
<b>Y x &amp; fi</b>		<b>EC9 ED9</b>	<b>F7: 9CF</b>

d fl t w <ds tvC Kad3d w-d s fi t < <fl -w <-s fi v d w s 06L ad 3d r z z 9lu <lv z 2Yr z fi r ffi <sz vt <fi <fi z d v



POPULATION EXPENDITURE

m  
j w x - A97B

i d i d d l f m m 5  
 B9B9 B9BA  
 f - y - w - c P - w - T - z - - R w w x  
 R z V j w w j - w h - - y 4A8A8 w z  
 A8A9

a... W	0x x c	9797	9798
	/80	/90	/: 0
<b>c x x x b</b>		<b>BC379</b>	<b>BF30:</b>
asv-asv-s≤6W vrffi		B3>>	B3>=
f fl t 4f fl t s≤6 sv		73 A	73=
Ris≤6f vs≤y6l fl 6l ws≤y		>3=	A3>7
Pzy5dy zi 5Mfi fi sfi d zu5dyvffi			
Mby≤y6Wvr		837A	837
evfi vs≤d 60xx rflu Wzffi		93=8	: 3:
ds 4ds s≤6gvxv rsffi		; 3>	; 3>
Tsus≤y4Tsus≤ys≤6Wx fi v		73<	73=8
K sz4K szs≤P z		93 B	93>
V ≤s±vs≤Tws s6Zffi flu Mz≤fi		83>	9388
Kszs≤V ≤ fl s≤6lv v rxv d		83 :	83<
K fl t 4K fl t s≤6d zv		73A	73A=
T ≤ fl -Us≤s6Wz tvffi fl v≤ P≤u6vfi		73 =	73 >
V s±s≤vs≤V ≤ fl s≤Sv 6a v r vu P≤u rflu Lv v rxv		8: 3;	8: 3;
c ± ±6Wxv v v		B3><	873'=
<b>O x c x x x g b</b>		<b>A: FE</b>	<b>A730D</b>
aw fl szs≤vs≤6b fi s c fl sz es≤yys6R≤ zix rflu R≤ vy≤ffi Pr zffi		8>3 B	9: 3=
J s±vs Ks s±y vs≤Ss s6Q≤u rflu dv zv		8: 38	8: 3=8
as±s±sJ fi Ts±vs≤e Tw s±s6Mfi yzfi x2P≤≤ vr 2rflu Rvr uxvr		: 3 :	73A7
Ks s±y eszs≤6fl s 6N rsffi Q≤u		<3=A	73 >
as±Ba s±y s±vs≤J s≤6er v rflu fl r fltv		: 3=9	737;
Tw wfi s≤aw s vs≤f sus s6l wesy 6ar zv rflu M vfi sfi z		83<	73>9
<b>Y x g fi</b>		<b>87737</b>	<b>87737</b>

d fl t w6d≤ tvC Kad3d w-d sfi±z≤ fl -W6 -sfi/d wes 06Lad3d r z z sflu sfi v z 2Yr z sfi r ffi s±zsr±sfi sfi z d v

$\frac{m}{jwx -}$  A9T

i i f Y i  
 i d l d m m 5B9B9  
 B9BA  
 f- y- w- f w x c f- R w w  
 T - z -R w j w w j- w h- - y 4A8A8 z w  
 A8A9

U	x f... ..x x ...ax x		
i	i .y. x Wfi fia Wfi	9797	9798
	/ x 6 fi 0		
	/80	/90	/: 0
E	977 777	4	4
	977 777 4 9BB BBB	93 >	73 >
	: 77 777 4 ; BB BBB	9; 3 <	8 < >
	< 77 777 4 > B BBB	: 93 <	: 83A
	> 7 777 4 BBB BBB	8A3 :	983-A
	8 777 777 4 8 9 ; B BBB	A3 <	8: 3B
	8 9 < 777 4 8 ; BB BBB	; 3 >	= 7
	G 8 < 7777	A3A	88 39
<b>Y</b>	<b>x φ fi</b>	<b>87737</b>	<b>87737</b>

d fl t w 6 d ≤ tvC Kad3d w+d sfiNt ≤ fi -W -sfi/d ves 06Lad3d r z z 9lu<lv x 2Yr z sif r fi s z s t s i s i z d v

POPULATION EXPENDITURE

$\frac{m}{jwx} - A97D$

i i f Y i  
i d l d m m 5B9B9  
B9BA  
f - y - w - R x c - Rw w  
T - z - R w j w w j - w h - - y 4A8A8 zw  
A8A9

U	x f... ..x x ...ax x		
i	i .y. x Wf fa Wf	9797	9798
	/ x 6 fi 0		
	/80	/90	/: 0
E	977 777	4	4
	977 777 4 9BB BBB	73<	73<
	: 77 777 4 ; BB BBB	8838	>87
	<77 777 4 > B BBB	9: 3<	973A:
	>7 777 4 BBB BBB	8A39	973 7
	8 777 777 4 8 9 ; B BBB	8737	8<B=
	8 9 <777 4 8 ; BB BBB	>3A	B3-B
	G 8 <7777	9>97	9<B>
<b>Y</b>	<b>x φ fi</b>	<b>87737</b>	<b>87737</b>

d fl tw6d≤ tvC Kad3d wd -sflN± ≤ fl -W6 --sflvd ves 06L ad3d r z z 9lu<flv x 2Yr z flr fl± z svt<fl<fl z d v

$\frac{m}{jwx -}$  A9Æ

k &k i d S 1 2  
 i k 6k i d S  
 f c d d m m 5  
**B9AE 6B9BA**  
 P - w - - Rw wc T - z - 0 w 1w z  
 f - y- w - P - w - - Rw wc T - z - x  
 j - R jw w j- w h- - y **4A89D**  
**A8A9**

$jx$ $u fi$	$hx x4ix xf... \dots x x$ $U fi l Wi fi a$	$ax x$ $a$	$f \dots x \dots bx x4x xf... \dots x x$ $ax xi.y. x$ $U fi l Wi fi$ $a$	$Y x$ $p fi$	$Y x$ $p fi$	$Y x$ $p fi$
	$c x x x$ $b$	$0 x$ $c x x x$ $j b$	$c x x x$ $b$	$0 x$ $c x x x$ $j b$	$Y x$ $p fi$	$Y x$ $p fi$
/80	/90	/:0	/:0	/:0	/:0	/:0
978<	; 79 7;;	9B9 7;;	<b>CFA 7DE</b>	<B9	; 93A	<b>87737</b>
978=	; 9; 99>	9>; 9=	<b>D77 CB:</b>	=73<	: B3 <	<b>87737</b>
978>	; 9>B: 7	9A<; 87	<b>D8: : A7</b>	<BBB	; 738	<b>87737</b>
978A	; < <9:	: 7=; >>	<b>DBF F77</b>	<B3A	; 73 9	<b>87737</b>
978B	; ; : >>	: 8=; : <	<b>DC7 887</b>	<A3 >	; 83=	<b>87737</b>
9797	; A: ; 7B	: >B; =	<b>EC9 ED9</b>	<=79	; : 3A	<b>87737</b>
9798	< B < >	: AB 8BB	<b>F9E D: C</b>	<A7B	; 838	<b>87737</b>

d fl t w6d< tvC Kad3d wd -sfi± ≤ fi -w6 -sfi/d wes 06L od3d r r z z 9lu sli v z 2Yr z sli r fi ± z s r s i s i z d v

POPULATION EXPENDITURE

$\frac{m}{jwx} - A9\mathcal{F}$

U k & i d l  
 i d m m 1 25B9B9  
 B9BA  
 S x T - z - P - w - - R w w  
 f w j w w j- w h- - y 0 - y- 14A8A8 w z  
 A8A9

$jx$ $u fi$	A7, 0... .. x x h...-x HD. h a	A7, 0... .. x x i...x HD. i a	97, 0... .. x x j FD. d a
/80	/90	/:0	/;0
9797	<9AA	>A79>8	8A<88<
9798	<97;=<	B7: 8: <	8 >B=78;

d fl t w6d ≤ tvC Kad3d w-d sfiNt ≤ fl -V6 --sfi/d wes 06L ad3d r z z 9lu<iv z 2Yr z sIr ffi<szrt<si<si z d v

**BAB**  
Chapter

**11**

# **SISTEM NERACA REGIONAL**

*System of Regional Accounts*

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<https://tapanulitengahkab.bps.go.id>

**i VgCvERl Rg mVdgB**

**j TRWdXPbde j Ti**

74 [r"tuvo"tn" °@v@x "r.npn  
 "no-v" nyz r"tw @o x • r©" wx  
 n"t qv@ .av@xn" -yur[r.:r.xn@n"  
 Kn"t°n Kn"t°n .[KK/2 qvxr"ny  
 °ront nv' v@z Xr.npn Xn°v-"ny  
 .'XX/4'XX nqnyu .rx-z r"qn°v  
 v@..n°v-"ny@°" @n"t ont nuz n"n  
 zr" ° " x .n" nx@v@n°  
 rx-"-z v n"t °r° nv qr"tn"  
 °@n"qn... "r.npn onx n"t  
 qqn°n.xn" •nqn .v.°v 3  
 •.v.°v rx-"-z v@ \_rx-z r"qn°v  
 n"t qv nx° q qv n@xn"  
 qnyz °rx z • yn" x-"°r•2  
 qrs'v v@ xyn°vxn°v qn" n©.n"  
 "r.npn n"t qvr•nxn@ °rpn.n  
 v@..n°v-"ny qnyz zr"t x ...  
 v@vxn@..@.@°°r•r.@[.q x  
 M-z r°@x \_rtv-"ny K...@ .[MK/4  
 'nyu °n© or"©x nqn•@v  
 •r"pn@n@° °@v@x "no-v"ny  
 nqnyu z rynx xn" •r...onun"  
 @u " qn°n..[MK S'q-"r°v qn.v.  
 @u " 8666 xr 86764[r...onun"  
 @u " qn°n... [MK qvnx xn"  
 °rv.v.t qr"tn" .rx-z r"qn°v  
 [KK n"t @.©n"t qnyz 'v@z  
 Xr.npn Xn°v-"ny866A.'XX866A/4

85 aur zrfu-q ffrq ff r°ffz nff  
 Xnff-"ny Kpp-ff'ff 'ffhff'ff° v  
 on°rq -" ffr °ff"qn.q tffqry'r°  
 s-.z.rqo b"vffqXnff-"x"- "n°  
 '°ffz -sXnff-"nyKpp-ff'ff' /XK05  
 'XK v ffr v'ff..nff-"ny nt.rrq  
 °ff"qn.q °rff-s .rp-z z r"qnff-"°  
 -" u- ff p-z •vr zr n°ffir.° -s  
 rp-"-z v nppv v' v' npp-.qn"pr  
 vfu'ffvffnpp-ff'ff' t p-" r"ff-"°  
 on°rq -" rp-"-z v p•.v.pv yr°5aur  
 .rp-z z r"qnff-"° n.r. r •.r.°rq  
 v' ff.z. -s n °rff -s p-"pr•ff3  
 qrs'v vff-"°3 pyn°vxnff-"° n"q  
 npp-ff'ff' t .ffir° ffinffp-z •.vr ffr  
 v'ff..nff-"ny nt.rrq °ff"qn.q  
 s-...z rn°ffiv.t v qvnxff..: °ffpu n°  
 Q.°° \_rtv-"ny N-z r°ffp [.qffpff  
 /QN[05 Y"r -s ffr v •.r. rz r"ff  
 v' ffr "nff-"ny °ffhff'ff'ny °ffz  
 v' ff .ron°r QN[ s-.z. on°r rn...  
 9777 ff 9787 v' -.qr..ff pn°ffir.  
 pffi.r."ffr p-"-z v p-"qvff-"5ffv v'  
 y'r vfu ffr b"vffq Xnff-"° /bX0  
 .rp-z z r"qnff-" -" 977B 'XK5

84 [MK •nqn @'txn© "no-v"ny°r.@  
 [.q x M-z r°@x \_rtv-"ny K...@  
 .[M\_K/ •nqn @'txn© .rtv-"ny  
 •.r. v°v5xno •n@° 5x-@n/2  
 zr"ttnz on.xn" xrz nz • n"  
 ° n© vj nu "©xz r"pv @xn"  
 "vny @z onu •nqn ° n© nx©  
 @.@°°4 b"©x zr" ° " [MK  
 zn • " [M\_K qt "nxn" q n

95 aur on°p zr n°ffir. -s ffr nyff  
 nqqrq n.v.v't s.-z rp-"-z v  
 nppv v' v' x"- "n° Q.°°  
 \_rtv-"ny N-z r°ffp [.qffpff nff ffr  
 "nff-"ny r ryn"q Q.°° \_rtv-"ny  
 N-z r°ffp [.qffpff /Q\_N[0 nff  
 ffr .rtv-"ny yr ry /°.r. v'pr°6  
 .rtv"pr°6 fff pv nyffir°5 a-  
 p-z •vr ffr °r °ffhff'ff'°3 ff -



• r" qrxn 2 n v y n n t n ° nun  
 qn" • r" try n. n" 4 Urq n" n  
 z r" nwxn" x-z • -° v v qn  
 " ynv 0z onu qv. v. pv z r" ... 4

' z or ... xrt v n " r x - " - z v  
 . y n n t n ° nun / q n " z r " ... ©  
 x - z • - " r " • r " t t " n n " n 4 [ M K  
 z n • " [ M \_ K q n . v . ° v v y n n t n  
 ° nun z r . . . n x n " • r " w z y n u n  
 q n . v . ° r y . . . u x - z • - " r " " y n v  
 0 z o n u o . . . © n " t z n z •  
 q p v 0 x n " - y r u ° r x © . 3 r x © . . .  
 r x - " - z v n 0 n ° o r . a n t n v n x 0 v 0 n °  
 • . - q x ° v n 4 ' r q n " t x n " q n . v .  
 ° v v • r " t r y n . n " z r " w y n ° x n "  
 @ " @ n t • r " t t " n n " q n . v .  
 " y n v 0 z o n u @ . : r o @

94 [ M \_ K z r " ... © y n n t n ° nun : 5  
 z r " t n y z v r . . . o n u n " x y n ° v x n ° v  
 q n . v B y n n t n " ° n u n z r " w q v 7 =  
 y n n t n " ° n u n 4 [ M \_ K z r " ... ©  
 y n n t n " ° n u n q v . v . p v z r " ... ©  
 © @ y " y n v 0 z o n u q n . v . ° r y . . . u  
 ° r x © . . . r x - " - z v n " t z r " p n x •  
 y n n t n " ° n u n [ r . @ n " v n 2  
 U r u @ n " n 2 q n " [ r . v x n " n " D  
 [ r . 0 z o n t n " q n " [ r " t t n y n " D  
 S ' q ° © v . [ r " t - y n u n " D [ r " t n q n n "  
 W 0 x q n " P n ° D [ r " t n q n n " J v 2 .  
 [ r " t r y - y n n " ' n z • n u 2 V z o n u  
 q n " M n ... b y n " t D U - " ° © . x ° v D  
 [ r . q n t n t n " K r ° n . . q n " N p r . n " 2  
 \_ r • n . n ° W W - o w y q n " ' r • r q n W - © . D  
 a . n " ° - . @ n ° v q n " [ r . t . q n " t n " D  
 [ r " r q n n " J x - z - q n ° v q n "  
 W n x n " W v z D S ' s - . z . n ° v q n "  
 U - z " v x n ° v D T n ° n U r n " t n "  
 q n " J ° . n " ° v D \_ r n y N ° @ D T n ° n

n • . . - n p u r ° u n r o r r " f f r q 3  
 v 5 • . . q f f p f f - " n • . . - n p u  
 n " q r • r " q v f f i r . n • . . - n p u 5

aur s v : f f n • . . - n p u v f f z r n ° f f i r .  
 n y f f r n q r q • . . q f f p r q o n . v - f f i  
 x v ° q ° - s r p - " - z v p n p f f v f f r ° 3 u v r  
 f f u r ° r p - " q n • . . - n p u v f f z r n ° f f i r .  
 s v n y f f i r ° - s f f u r p - f f i f f . . ° - f f f f f f f  
 S ' - f f u r . . . - . q ° 3 Q N [ 6 Q N [ v f f u r  
 ° f f z - s f f f f y n y f f r n q r q • . . q f f p r q  
 o n y r p - " - z v p v q f f f v . °  
 / n p f f v f f r ° 0 n " q f f u r n - s f f v t v f 5

Q N [ o v q f f f f . . p y n ° ° v s p n f f i - "  
 p u n " t r ° s . - z C ° r p f f . : . f f 8 A  
 v q f f f f v . ° 5 Q N [ o v q f f f f . . v  
 p y n ° ° v s r q o f f • r ° - s r p - " - z v p  
 n p f f v f f r ° ° f f p u n ° K t . v p f f y f f i r . 3  
 P - . r . f f . . n " q P v u v t E W v v t  
 n " q ] f f i . . . v t E W n " f f s n p f f i v t E  
 O r p f f v p f f n " q Q n ° E d n f f . . : f f i • y 3  
 ' r r . n t r 3 d n ° f f W n " n t r z r " f f  
 n " q \_ r z r q n f f i - " K p f f v f f r ° E  
 M - " f f f f p f f i - " E d u - y r ° n y n " q \_ r f f w y  
 a . n q r E \_ r • n v . . . - s W - f f . . . c r u v p y r °  
 n " q W - f f . p . p y r ° E a . n " ° - . f f f f i - "  
 n " q ' f f . n t r E K p p - z z - q n f f i - "  
 n " q P - q ' r . . . x p r K p f f v f f r ° E  
 S ' s - . z . n f f i - " n " q M - z z f f i v p n f f i - " E  
 P v n " p n y n " q S ' ° f f i n " p r K p f f v f f r ° E  
 \_ r n y O f f i f f K p f f v f f r ° E L f f i v r ° °  
 K p f f v f f r ° E [ f f o y p K q z v v f f i n f f i - " E  
 N r s r " p r n " q M - z • f f i - . . . ' - p n y  
 ' r p f f i v f f E Q f f p n f f i - " E R f f z n "

[r...°nunn" D Jqz v̄v̄@n°v  
 [rz r.v̄. @un" 2 [r. @un" n"  
 qn" Tnz v̄ n" ' -°vny d nwoDTn°n  
 [r" qvqxn" DTn°n Ur°run@n" qn"  
 Urtn@n" ' -°vnyDqn" Tn°n ynv" n4

Rrnyffu n"q ' -pnvd -..x. Kpffv v̄fr°E  
 n"q Yffir... 'r...xpr° Kpffv v̄fr°5

; 4 [M\_K z r" ..© •r"try n.n" ;  
 z r" tnyz v.r...onun" xyn°vxn°v  
 qv n"n •r"try n.n" x-"° z °v  
 Vrzon t n X-" [..sv© n"t  
 Wryn n" v\_ z nu an"tt n.VX[\_a/  
 n"t °roryz " n @.z.n° x  
 ont v" qn.v. •r"try n.n"  
 x-"° z °v ..z nu @"tt n  
 z r" wqv x-z •-"r" @.v̄nu4  
 'ruv̄t n xyn°vxn°v [MK z r" ..©  
 •r"try n.n" qv.v̄.pv z r" wqv  
 = x-z •-"r" nv© x-z •-"r"  
 •r"try n.n" x-"° z °v ..z nu  
 @"tt n2 •r"try n.n" x-"° z °v  
 VX[\_a2 •r"try n.n" x-"° z °v  
 •rz r.v̄. @u2 •rz or" ©xn"  
 z -qny @@. o...@2 •r...onun"  
 v̄ r" @.v̄ rx° -... on.n"t qn"  
 w°n2qn" v̄ •-..on.n"t qn" w°n4

; 5 Q\_N[ o r •r"qvffir.pyn°vsnffr-"  
 pun"tr° ur.r. p-"°ffz •ffr-"  
 r •r"qvffir.X-"4 ..svfS°ffiffir-"  
 'r...v̄t R-ffiru-yq° /X[SR0  
 •.r.v-ffiy v̄pyffiq n° •.n.ff  
 -s u-ffiru-yq p-"°ffz •ffr-"  
 r •r"qvffir. v̄ ffxr" -fff v̄ff-  
 °r.n.nff p-z •-"r"fb ' - ffinfB  
 QN[ o ff.r -s r •r"qvffir.°  
 v̄ pyn°vsnq v̄ff-D u-ffiru-yq  
 p-"°ffz •ffr- r •r"qvffir3 X[SR  
 p-"°ffz •ffr- r •r"qvffir3  
 t- r."z r"ff p-"°ffz •ffr-"  
 r •r"qvffir3 t.:-° svrq pn°vfh  
 s-z.nff-"3pun"tr° v̄ v̄ r"ff.v.°3  
 r •.ff -s t--q°3 n"q °r...xpr°3  
 n"q v̄ •.ff -st--q°n"q °r...xpr°5

; 4 [r"try n.n" x-"° z °v ..z nu  
 @"tt n z r" pnx • or.ant nv  
 •r"try n.n" x-"° z °v nxuv..  
 ..z nu @"tt n n@n° on.n"t qn"  
 w°n " ©xz rz r" uvxro ©un"  
 v̄ qv vq n@n • " xry-z •-x  
 °rpn.n yn"t° "t4 [r"try n.n"  
 ..z nu @"tt n qv°v̄z r" pnx •  
 z nxn"n" qn" z v̄ z n" °rynv̄  
 .r.©.n" D• nxnvn" 2 nyn° xnxv qn"  
 w°n •r.n n@n" nD•r...z nun"  
 qn" •r.y."txn°n" ..z nu @"tt nD  
 xr°run@n" qn" •r"qvqxn" D  
 @n"° •. @°v qn" x-z "vxn°vD

<5 R-ffiru-yq p-"°ffz •ffr-"  
 r •r"qvffir.° p-"°vff -s  
 r •r"qvffir.° v̄ pffi.rq o  
 u-ffiru-yq°3 upu n.r. ffrq s-...  
 o-fu v̄ qv qffny-..p-yr pffr "rrq°5  
 R-ffiru-yq p-"°ffz •ffr-° n.r.  
 pyn°vsnq v̄ ff s--q n"q or r.nt r°  
 -fur...ffin" .r.°ffiffin" ffE py-fv̄v̄ t3  
 s--ff rn.3n"q.rynffqz nv ff "n" pr  
 °r...xpr°E u-ffiv̄t n"q u-ffiru-yq  
 r"ffv̄z r" fEurnyfu n"q rqqfnpffr-"E  
 ffa"° •.ff n"q p-z z ffl v̄pnffr-"E  
 .r.°ffiffin" ff n"q u-ff yEn"q -fur.°5

.r.°@.n" qn" u-@y°r.@ yn" n4

<4 [r"try.n.n" Vr z ont n X-" [...sv@  
 n"t Wryn n"v \_ z nu an"tt n  
 .VX[\_a/ z ryw @ .r"try.n.n"  
 VX[\_a n"t or...r.n°v qv  
 S"q-"r°vn4 VX[\_a z r...nxn"  
 yz ont ns-.z. nyz n . " v s-.z. ny  
 n"t qvor"©x -y.u . r...n"tn"  
 n@n xry-z . -xz n° n.nxn@qnyz  
 .n"txn z r" r qvnxn" on.n"t5  
 w°n °rpn.n.t.n@ n@n qr"tn"  
 un.t.n n"t @qnx"t" w°xn" °rpn.n  
 rx-"-z v xr.nqn n"tt-@n n5  
 ..z nu @n"tt n5 xry-z . -x  
 z n° n.nxn@VX[\_a @.yon@qnyz  
 . .-q x°v "- . n°n... qn" @qnx  
 qxr" qnyxn" -y u . rz r.v. @u4

=5 aur r . r" qvffir. -s X-" [...svff  
 S°fffff- "° 'r..v't R-ffru-yq  
 /X[SR°0p-z . v.r°ffur . r" qvffir.  
 v pffir.q o /X[SR°0 -r.nff v  
 S"q-"r°vn5X[SR° p-"°vff-srvfur...  
 s-.z. ny -... " -z.z. ny r°ffoyur q  
 o v qv qffiny° -... p-z z fff vfr°  
 v° -qr...ff . .-z qr t--q°6s.r r  
 °r...pr° offf q- " -ff °ry fyurz nff  
 rp-"-z vony °t " w°pn"ff . .vpr°  
 ff- furv... z rz or.°6u-ffru-yq6  
 p-z z fff vfr°5X[SR° . .-qffpr "-4  
 z n.xr ff . :qffpp n" q furv.npff vfr°  
 n.r.or -" q fur t- r . :z r" ff- ff- y5

=4 [r"try.n.n" U-"° z °v A5  
 [rz r.v. @u @.q.v.v. qn.v.  
 [r"try.n.n" U-"° z °v S"qv q  
 qn" [r"try.n.n" U-"° z °v  
 U-yx@4Kn.n"t qn" w°n v qv q  
 z r... . nxn" on.n"t qn" w°n  
 . .v.n@ qv z n" n p.v.v.v. on.n"t  
 . .v.n@ nqnyu n/ 'pn.pff 2 nv@  
 nqn xry n"txnn" 5xr @.an@n"  
 qnyz wz ynuD o/ O pffqnoy  
 p-"°ffz . ff- "2 nv@ x-"° z °v  
 ° n@ on.n"t qn.n@ qvon@v  
 un" n . nqn z r.r.xn n"t  
 z rz r" uv . r . :. n.n@n" @. @ " ©  
 .ov n" n un.t.n/D p/ \_v ny. :. fff  
 p-z . r fff- "3 nv@ x-"° z °v -y u  
 ° n@ x-"° z r" nxn" z r"t .n"tv  
 n@n z r"tu v n"txn" xr°rz . n@n"  
 . wnx yn" "©x z r ynx xn" uny  
 °r... n4L-"@u on.n"t qn" w°n  
 n"t qun°vxn" . rz r.v. @u qn"

Q- r . :z r" ff p-"°ffz . ff- "  
 r . r" qvffir. p-"°vff -s S"qv qffiny  
 M-"°ffz . ff- " O . r" qvffir.  
 n"q M-yr pffir M-"°ffz . ff- "  
 O . r" qvffir 5S"qv qffinyt --q° n"q  
 °r...vpr° n.r. . .v.nff t--q° n"q  
 °r...vpr°3 uvu fur pun.npff . vffp°  
 -s . .v.nff t--q° v n0 'pn.pff 3  
 funff fur.r. v n°pn.pff 6 ye vff q  
 v " ffz or.E o0 O pffqnoy  
 p-"°ffz . ff- "3 fur p-"°ffz . ff- " -s  
 t--q° pn" or ye vff q -y ff fu-r  
 u- z r rff pr. ffv" .r" ffur z r" ff  
 /ffffny fur . .vpr @ p0 \_v ny. :. fff  
 p-z . r fff- "3v p-"°ffz . ff- " o fur  
 p-"°ffz r... wy.r qffpr -.ryz v nff  
 fur pun"pr -s n"-ffr...n. ff q-  
 °-50 nz . yr° -st--q° n"q °r...vpr°  
 . .-qffpr q o t- r . :z r" ff n"q  
 pyn°vqr q n° t--q° n"q °r...vpr°  
 -s v qv qffiny° v fur t- r . :z r" ff

@.t.-y"t °r ont nvon.n"t qn" w°n  
 v° qv vq nqnyu w°n . r yn n"n  
 xr°run@ . rz r.v. @u qv ..z nu  
 °nx@ °xr°z n° qn" w°n  
 . r" qvqxn" qv°rx-yu5 "vr. :@°  
 "rtr.v' rqn"txn" on.n"t qn"  
 w°n x-yx@s rx vny" qr"tn"  
 on.n"t . oyx n"t z rz vvxv p.v.  
 n/ X-"4v.ny.3 n@ . r"tt "nn"  
 °n@ x-"° z r" @.unqn. ° n@  
 on.n"t @qnx z r"t .n"tv  
 xr°rz . n@ "x-"° z r" ynV "©x  
 wtn z r"tx-"° z °v on.n"t  
 @.:ro @o/X-"4 pyffqnoy2 n@  
 n. novn ° n@ on.n"t . oyx  
 @.:rqv2 z nxn @qnx nqn n"t  
 qn. n@ z r"t uny"tv °vn. n. "  
 "©x z rz . r.-y u z n" snn@qn.v.  
 on.n"t @.:ro © n@ qr"tn"  
 xn@ ynV °r@n. -.n"t z rz vvxv  
 nx°r° xr on.n"t @.:ro @4L-"@u  
 on.n"t qn" w°n n"t qun°vxn"  
 . rz r.v. @u qn" @.t.-y"t  
 °r ont nvon.n"t qn" w°n x-yx@s  
 nqnyu w°n . r.@un"n" n"t  
 qvnx xn" aXS qn" xrnz n"n"  
 n"t qvnx xn" xr.-y°v"4

urnyfu °r...xpr° v° u-° vfy°6urnyfu  
 pr"ff.:.n"q rqqfprffv-" °r...xpr° v°  
 °pu--y°6 fff°vr.:vfr°5 M-yxpfvr  
 t--q° n"q °r...xpr° r"ffv ny"ff ff  
 .ffoyx t--q° pun.npff.v.r q o n0  
 X-"4v.ny.3 "nz ry ffr ffr -s n  
 p-"°ffz r...s-..n" vffz q-r° "-ff  
 .rqqfpr fur pun"pr -s n"-fur...  
 p-"°ffz r..ff ny°-p-"°ffz r t--q°E  
 o0 X-"4 pyffqnoy3 v°5 ur" n  
 .ffoyxt--q n nyoyn3fur" "-ffv°t  
 pn" uv°qr...n" -"r ff or"rsff  
 s.-z fur t--q° -.v° -ffur... -q°  
 r r...-r un° nppr°° ff fur t--q°5  
 Onz .y° -s t--q° n"q °r...xpr°  
 .:qffpr q o t-r.:z r"ff n"q  
 py°°svr q n° p-yxpfvr t--q° n"q  
 °r...xpr° v° pn..w.q z wffh...qr sr"°r  
 °r...xpr° n"q ffr .-ypr.° r pffv v°5

A4 [rz or"©xn" W-qnyar@. K...@  
 .[WaK/ z r" pnx . . r"tnqnn"2  
 . rz o n@2 qn" . rz oryn"  
 on.n"t z -qny4 Kn.n"t z -qny  
 qv° nx° q nqnyu on.n"t 3on.n"t  
 n"t qv° "nxn" "©x . :.°r°  
 . :.q x°v @un" ynz n n@ n"t  
 z rz . " nv z ... rz nxn"  
 yrow qn.v. °n@ @u " °r.r.@  
 on"t "n"2 z r°v 3 r°v 2 qn"  
 nyn°n"tx @"4ar.z.n° x . yn qv  
 °v°r.anxn" or°n...or.n@ n"t

B5 Q.:.° Pvrq Mh.vfy P-.z.nffv"  
 /QPMP0 v°pyffq° . :.pffirz r"fb  
 z n"ffnppffir3 n"q fur . ffpun°r  
 -s pn.vfy t--q°5 Mh.vfy t--q°  
 n.r. t--q° uvpu n.r. ffrq s-..  
 fur . :.qffpffv-" . :.pr°°3 qffnoy  
 -...un r n °r...xpr ysr -s z -.r.  
 fun" -"r rn.:ffpu n° offvqv°t°3  
 z npuv°r..3 n"q ffn°°-.ffffv"  
 r"ffv z r"fb S°pyffqv°t ur.rDuffr  
 v° . :. rz r"ff funff n.r. ff r ff"q  
 fur ysr -..pun"tv°t fur °un°r -...

°vsn© n z rz • r.:n" w"t z ...  
 n@ z r"t onu or"©x n@  
 xn• n°v@ on.n"t z -qny@.:ro @  
 [r"try n.n" on.n"t z -qny  
 "©x xr• r.y.n" z w@... wtn  
 qpvx • °ront nv[ WaK4Uyn°vsn°v  
 x-z • -"r" [WaK qvont vz r" wqv  
 <° ox-z • -"r" nv© U-°@.x°vD  
 Wr°v qn" [r.nyn@ "DUr" qn.nn" D  
 [r.nyn@ " Vnv" nD Mffjfv nff q  
 Lv-y-t vny \_r°-ffipr° /M\_0 qn"  
 [.:q x Urxn nn" S°@yx© nyA

ffur pn• npvf -s ffur pn• vfhyt--q°5  
 Mh• vfhv r • r" qvffir:° s-...z vjfh...  
 • ffi:°r° n.r.ny- p- r.rq n° QPMP5  
 QPMP p-z • -"r" ffn.r.pyn°vsvr q v ff  
 °v ffo4p-z • -"r" ffdm-" fffffpff- "E  
 Wnpuv r...n" q O' ffv z r" fE ruvyr E  
 Y ffur... r" ffv z r" fE Mffjfv nff q  
 Lv-y-t vny \_r°-ffipr° /M\_0 n"q  
 S' ffyr pffhny [.:r.r.ff [.:qffpfb

B4 Nk° -..on.n"t qn" w°nz r... nxn"  
 ©n"°nx°v • r.qnt n"tn" on.n"t  
 qn" w°n qn.v• r" q q x .r.:vqr" /  
 xr o xn" • r" q q x ."- .r.:vqr" /4  
 S • -...on.n"t qn" w°n nqnyu  
 ©n"°nx°v • r.qnt n"tn" qn.v.  
 o xn" • r" q q x xr • r" q q x4  
 Nk° -..n@ v • -..on.n"t @.wqv  
 • nqn °nn© @.wqv • r...onun"  
 unx xr• rz wxn" on.n"t  
 n" @.n • r" q q x qr"tn"  
 o xn" • r" q q x .qr"tn"  
 n@ @"• n • r.:v qnun" svx  
 on.n"t @.:ro @4 [nqn [MK  
 qr"tn" @u " qn°n... 86762  
 rx° -..qn" v • -..on.n"t qv.v pv  
 z r" wqv "-z vt n° qn" z vt n°4

C5 O • -..ff -s t--q° n"q °r...xpr°  
 p-"°vff -s ffn"°npffv-"° -s t--q°  
 n"q °r...xpr° s.:z .r.:vqr" ff ff  
 "-4r.:vqr" ff5 S • -..ff -s t--q°  
 n"q °r...xpr° p-"°vff-s ffn"°npffv-"  
 -s t--q° n"q °r...xpr° s.:z "-4  
 .r.:vqr" ff ff .r.:vqr" ff5 O • -..ff  
 n"q v • -..ff -s t--q° -ppff.. ur"  
 ffur.r. n.r. pun"tr° v - "r.:uv  
 -s t--q° orff rr" .r.:vqr" ff n"q  
 "-4r.:vqr" ff / vfu -... vfu-fff  
 • u °vny z - rz r" ff -s t--q°  
 np.:° s.:=" ffr.:05 Y" ffur QN[  
 nff 9787 on°p rn.3.r • -..ff n"q  
 v • -..ff -s t--q° °rpsvq v ff  
 "-4-y n"q tn° n"q -y n"q tn°5

764 [.:q x M-z r°@x \_rtv- ny  
 K...© z n • " nt.r.tn©  
 ©...n" n qvnxn" qnyz  
 q n r.:v • r" vnn" 2 nv© n@°  
 qn°n... un.t.n or.yax qn" n@°  
 qn°n... un.t.n x-"°@ 4 Mvro ©  
 °ront nv un.t.n or.yax xn.r:"n  
 °ry ...u nt.r.tn© qv vny qr"tn"  
 z r"tt "nxn" un.t.n • nqn

875 QN[ n"q vff ntt.r.tnff-"° n.r.  
 • .r.:r" ffq v ff -s-z.°Dnffpffir.: ff  
 z n.xrff • vpr° n"q nff p-"°ff" ff  
 on°r rn... z n.xrff • vpr°5 S'  
 • .r.:r" ff"t pffir.: ff z n.xrff • vpr°3  
 nyntt.r.tnff° n.r. nyffiq nffpffir.: ff  
 z n.xrff • vpr°3 uvv on°r rn...  
 p-"°ff" ffz n.xrff • vpr° n.r.:u- "  
 o nyffv"t nyntt.r.tnff° nffsvrq

@u " or.wyn" 2°rqn"txn" un.t.n  
 x-"°@ " . r" ynn" " n qvqn.n.xn"  
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 M-z r°@x \_rtv-"ny K..@  
 qvr. :yu qn.v. . r.uv° "tn"  
 [M\_K n@° qn°n..un.t.n x-"°@ " 4  
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 z r"t .n"tv "ynv [M\_K .nqn  
 @u " xr 3" @.unqn. " ynv .nqn  
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 qontvqr"tn" " ynv .nqn @u "   
 xr " 372 qvnyxn" qr"tn" 766  
 . r.°r"4 Vnw . r.©z o un"  
 z r" " wxxn" . r.xrz on"tn"  
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 @.unqn. nx© °roryz " n4

885 Q. :. ffu .nff -s Q. :.°° \_rtv-"ny  
 N-z r°ffp [ .:qffpfv qv.r.vq s. :z  
 QN[ nffp-"°ff" ffz n.xrff . vpr°59fv  
 -offv r q o °ffoff.npff' t fūr nyffr  
 -s Q\_N[ rn.." vfu fūr nyffr -s  
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 -s Q\_N[ rn.." 48 fūr" z fffv yrq  
 o 877 . r.pr" f5 aur t. :. ffu .nff  
 -s Q\_N[ r . ynv° fūr v p-z r  
 t. :. ffu qffv. t fūr tvr" . r.v. q5

784 Rn.t.n qn°n...nqnyu or°n.n"  
 n"t qv@.v n -yu . :.q r"  
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895 aur on°v . vpr v fūr nz -ff' ff  
 .rprv noy o fūr . :.qffpr...s. :z  
 fūr . ffpun°r...s...n fff vf -s t--q  
 -...°r...vpr . :.qffpr q n° -fff' fff  
 z v' fff n" fh . n noy3 n"q  
 . yff n" °ff°vq .rprv noy3 -"  
 fūnff fff vf n° n p-"°r" ffr" pr -s vf  
 . :.qffpfv-" -...°ny5 ff r pyffq°  
 n" ffn° . -ff pun.t.r° v -vprq  
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8: 5 Yffff ffff nqnyu " ynv qn.v.°ry ...u  
 . :.q x n"t qun°vxn"  
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 qr"tn" z rz n" snn@xn" snx@...  
 . :.q x°v n"t @. :rqn qv° n©  
 yn nu ."rt.n.n2 . :. v°v2 qn"  
 °ront nv n/ qnyz ° n© . r.v. qr

8: 5 Yffff ffff v fūr nyffr -s . :.qffpfv  
 . :.qffpr q o . :.qffpfv-" °rpf. :.  
 fffv v' t ny . :.qffpfv-" snpf. :.  
 n nvyoy v fūr .rtv-" qffv. t n  
 tvr" . r.v. q3 vfu -fff' fhxv' t v ff  
 npp-ff' ff fūr -.v' -s . :.qffpr. :5

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 @u “/2 @“•n z rz•r.un@x“  
 n°nyß ° y •rynx . .:q x°v n4

7: 4 [r“qn•n@“ ..z nu @“tt n  
 nqny nu •r“qn•n@“ n“t  
 qv@.v n-yu ..z nu @“tt n2onx  
 n“t or.n°ny qn.v. •r“qn•n@“  
 xr•nyn ..z nu @“tt n z n • “  
 •r“qn•n@“ n“tt-@ ..z nu  
 @“tt n4 [r“qn•n@“ ..z nu  
 @“tt n qn•n©or.n°ny qn.v.onyn°  
 w°n snx@... :.q x°v@“nt n xr .w  
 . •nu qn“ t n w2 xr “©“t n“2  
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 .°r n2 ont v un°v2 qy2 z n • “  
 •r“qn•n@“ n“t or.n°ny qn.v.  
 •rz or.w“ •wnx yn v .@n“°sr .4

7; 4 T z ynu •r“qn•n@“ ..z nu  
 @“tt n nqny nu @•@y•r“qn•n@“  
 n“t qv@.v n -yu ..z nu  
 @“tt n2 onx n“t or.n°ny qn.v.  
 •r“qn•n@“ xr•nyn ..z nu  
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7<4 [r“try n.n“ x-“° z °v nqny nu  
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 “©x x-“° z °v nxuv..@.unqn•  
 or.ant nv w“v •.q x °r•r.@  
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 v vz r“pnx ••rz or yn“ or.ant nv  
 w“v on.n“t qn“ w°n un°y qn.v.  
 .:q x°vq-z r°@x z n • “v •-.4.

7=4 \_ z nu @“tt n nqny nu °r°r-.n“t  
 n@ °rxry-z •-x -.n“t n“t

8; 5 R-ffru-yq v p-z r v qrs v r q n°  
 v p-z r° .r.prv r q o nyu-ffru-yq  
 z rz or.°5 R-ffru-yq v p-z r pn“  
 or v ffr s-z. -s° .:qffpffr-“ snpff..°  
 p-z •r“°nffr-“ / ntr°n“q °nyn.v.°3  
 •.svff3 o-“ffr°3 rffp@ pn•vfy  
 p-z •r“°nffr-“ /r.“fb• .:svff°un.v.t3  
 rffp@ ...v p-z r° s.-z ffn“°sr .5.

8<5 a-ffhy u-ffru-yq v p-z r v  
 ff-ffhy v p-z r .r.prv r q o ny  
 u-ffru-yq z rz or.°: /urnq -s  
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8=5 M-“°ffz •ffr-“ r •r“qvffir.v n pfffn  
 r •r“qvffir.-s u-ffru-yq s-..sv ny  
 p-“°ffz •ffr-“ °r“ff s-... n.v.fff  
 t--q° n“q °r...xpr° /r pyffqv t  
 ffn“°sr .05M-“°ffz •ffr-“ r •r“qvffir.  
 v pyffqr° °r“qv t s-... n.v.fff  
 t--q° n“q °r...xpr° .r°ffvff q s.-z  
 q-z r°ffp •.qffpffr-“ n“q v •-.ff5

8A5 R-ffru-yq v n“ v qv qffny -..n  
 t .:ffr -s•r-°y yv v t v n•u °vny6



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z nxn" qn.v°n© qn• .4.

pr" °ff offyqv' t fff vff-..s.n. fffir .r-s  
u- z nxr p-z z -" •.∴ vV-" s-...  
s--q n" q-ffir .r.°r" °vny<sup>p</sup> -syv' t 5

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Y	U	S	R	U	a	S
AA7A	1	2B9BA				
V	h-	wS	-	yf	z y w R	- c w - f y- x
Xz		jw w	j-	w h-	- y α	w 1A8A9

<https://tapanulitengahkab.bps.go.id>

d fltw6d≤ tvC KadBtwtsys-w≤ 3 w+v≤ fltw fi-≤lad3dr z z flwslv z2 r z tvfl 2 v2rfly≤yv ≤ tv



<https://tapanulitengahkab.bps.go.id>

**m**      **AA7A**      **i**      **U**      **k**      **S**      **R**      **U**      **a**  
**j** **w** **x** -      **S**      **f**      **e**      **n**      **d**      **m**  
                  **m**      **1**      **5B9AG**      **B9BA**  
**V**      **h-**      **w** **S**      -      **y** **f**      **z**      **y** **w** **R**      -      **c** **w**      -      **f** **y-**  
**x** **X** **z**      **j** **w** **w**      **j-**      **w** **h-**      -      **y** **0** **k**           **w** **14**  
**A89F**      **A8A9**

	bx x x k x x e	978D	978E	978F	9797	9798
	/80	/90	/: 0	/A0	/B0	/C0
J	aw s<=s3Tw s<=s3vs< aw<=s<=sKx z ffi v2P<=v 2 rflu Pz yzix	: B> 3>>	; 9; 83<>	; <893=	; =A93 7	; B7=>7B
K	aw sfl t s<=s<=vs< awsyysfis<=Wziflix rflu b r zix	993 A	9; 3 B	9=>9A	9=>97	9>3-9
L	Rsv -awsy fisz s<=s< Wrfi wt zix	BA>89	87<B3A7	889>87:	88: : 37	89: 93A9
M	awsy svss<=U- +vs<=Ps 6 Ofit z z rflu Qr	; A3>B	< 3:	<=>A	<3<	<B3A9
N	awsy svss<=J -Dawsvfi fis<=s< dsfl sz3Ufi t sz3vs<=Ns f fis<=y6hr v d ffeDv v rxv2 h r v Wrfi r xvfi vfi 2rflu cvfi vuaz zfi Kt z z z v	873 9	883>=	893B:	893<=	893>>
O	T <= ±6Mfi t zfi	BB: 3>	87B93 8	88B93=7	88>73A	89: =>3>
P	awvsy s<=s<=Kws vs<=Nws<=D cws s -V t fivs<=dw wws V 6h y<=ffi r ffi rflu cv r ffi eruvEcv rz sW<=s gvyzffi rflu W<=s t tffi	B> 3A	87A; 3<	899B37=	89: => B	8: 9>3>
Q	es<= s -vs<=awy vs<=s<=s< erfl <= r zfi rflu d<=rxv	9: : 3>	9<93<	9>3>	9<B3A7	9: 83>
R	aw<=w<=s<=s<=J ±fl vs<=vs< Vs<=s<=V <= fl 6Ktt<=fi sur zfi rflu P<=s<=dv z v Kt z z z v	89: 3A	8: ; 3A;	8: >3:	8: A3B	8: 73A;
S	Rex fl s -vs<=T fl <=s<=6 Sfiv<=fir zfi rflu Mfi fi fitr zfi	<73<	< 3>>	=73 9	=3<	>7B;





Vn" w@n" anor yM-" ff' ff' q anoy 774B

bx x x k x x e		978D	978E	978F	9797	9798
/80		/90	/: 0	/A0	/B0	/C0
T	Ss s Tw s s y s s v s s l s s -6 Pzlr fltz fm flu fl r fltv Kt z z z v	=83-9	=: 3>	=>7A	=A3-9	>93A7
U	c w s f i N s c v r f i D r v K t z z z v	89B3A:	8: A3B:	8: >77	8: A3AB	8<73>
V 3W	Ss s aw szss s l zlv Kt z z z v	8A3->	8B3-B	973<>	973B8	9737
Y	J v f l <- s -a w l w <-s z s s 3 aw szs s s s v s s s f l s s s d -s f h s . t s a s f f i K u f i z l r z s l r f l u N v w f l t v E M s f i f f s d s t r f i v t z	<7: 3>	< 87:	<<A3>	<< 79	<<73A
a	Ss s a w s v v -s s c o t r z s l	=A3-9	>93 B	>3>	>3 7	>83>
b	Ss s T w w s s s v s s T w y -s s s d -s f e r f i r f l R v r f f y r f l u d s t r f f i h s f f K t z z z v	9939	9: 3=	9: 3 9	9: 3 =	9: 3;
c 3 l 3 e f	Ss s l s <-s s 6 z y v d v zlv Kt z z z v	<3A=	=3B	=<	=<	=<
f - R c n f i Y	... h... x 0 l	C : AE3AA	C CDE3B	D 79A3B	C FD73E	D 8AF3E

Ls s s s s v C J s y s d w l w e s s a v i f i z l r P x v  
 J s y s d s s s d w l w e s s g v a v i f i z l r P x v  
 a w t w s s s s s . f i f i z a M K ; a <-v s a M K P e v s w s s s s f i s v -v t s t s s f i v v -t w s s - s - s e y v  
 u z v f l t v s v v f l y v s r f f e Q c N a s 0 : a s z l t v r f l u y v Q N a s v f l u s l v x u v s y v r z z r f i u z t v r f l t z v  
 d f l t w 6 s t v C K a d 3 t w t s y s -w s 3 w v s s f l t w f i s s l a d 3 l r z z s f l u s l v x 2 r z s t v f l 2 v 2 r f l u s y v s t v

$\frac{m}{j_{wx} -}$  AAZ

U i i U k S  
 R U a S f e n  
 d m m 5B9AG B9BA  
 f-y- w-S x V h- w S - yf z y  
 w R - c w - f y- x Xz jw w j- w  
 h- - y 4A89F A89H

	bx x x k x x e	978D	978E	978F	9797	9798
	/80	/90	/: 0	/A0	/B0	/C0
J	aw s<=s<3Twe s<=s<3vs< aw-s<=s<3kx z ffi v2P<v 2 rflu Pz yzix	; =>7	; <B<	; <3 9	; =>3A	; =>37
K	aw sfl t s<=s<=vs< awsyysfis<=Wziflix rflu b r zix	73=>	73=>	73=>	73=>	73=>
L	Rsv -awsy fisz s<=3 Wrfl wt zix	883<<	883 A	883 9	883A	883-8
M	awsy svss<=U- +vs<=Ps 6 Ofit z z rflu Qr	73>>	73-A	73>>	73>>	73<=
N	awsy svss<=J -Davesy vfi fis<=3 dsfl sz3Ufi tsz3vs<=Ns ffis<=y6hr v d ffEdv v rxv2 h r v Wr flrxvfi vfi 2rflu cvfi vuaz zfi Kt z z z v	7389	7389	7389	7389	7389
O	T <= ±-6Mzfl t zfi	883-9	883A:	883BA	883<<	883;>
P	awvsvs<=s<=Kws vs<=Nwvs<=3 cws s -V t fivs<=dw wws V 6h y<=ffir ffrflu cv rffi eruvEcv rz <=W<=s<=gvyzffi rflu W<=s<=t tffi	883 7	883<	893 ;	893B	893-7
Q	es<= s -vs<=awy vs<=s<=3 erfl <= r zfl rflu d<=rxv	93;>	93;>	93A	93<=	93A
R	aw<=w<=s<=J ±fl vs -vs<=3 Vs<=s<=V <= fl 6Ktt<=fi sur zfi rflu P<=s<=dv z v Kt z z z v	83 ;	83 =	83 A	83 >	83 :
S	Rex fl s -vs<=T fl <=s<= 6 Sflv<=fir zfl rflu Mfi fi fltr zfi	73-B	73-B	73-B	73;>	73>>



Vn" w@n" anor ySM- " ff' ff q anoy 774

bx x x k x x e		978D	978E	978F	9797	9798
/80		/90	/: 0	/A0	/B0	/C0
T	Ss s Tw s sjs s vs s l s s -6 Pzlr rltz rflu r rltv Kt z z z v	73B	73B	73>	73A	83:
U	c w s f i N s G c v r f f 0 r v K t z z z v	83B	937	93:	93=	93:
V 3W	Ss s aw szss s l zlv Kt z z z v	73 9	73 9	73 9	73 :	73 :
Y	J v f l s - s - a w f l w s s z s s 3 aw szs s s s vs s s f l s s s d - s f h s . t 6 a s f f i K u f i z l z r z f l r f l u N v w f l t v E M s f i f f s d s t r f a v t z	A3-9	A3<	A3 >	A3>7	A3=
a	Ss s a w s v - v - s s f 0 u t r z f l	73>	73>	73B	73A	73A
b	Ss s T w w s s s vs s T v y - s s s d - s f e R f i r f l R v r f f y r f l u d s t r f f i h s f f K t z z z v	73 9	73 :	73 ;	73 <	73 :
c 3 3 3 f	Ss s l s s s s 6 z y v d v zlv Kt z z z v	73B	73B	73B	73B	73B
<b>f - R ... h... x 0 c n f i Y l</b>		<b>87737</b>	<b>87737</b>	<b>87737</b>	<b>87737</b>	<b>87737</b>

Ls s s s s v C J s y s d w i l w e s s 6 a v f f i z l r P x v  
 J s y s d s y s d w i l w e s s 6 g v a v f f i z l r P x v  
 awtwss s s s s . . f i f i z a M K : ; a s - v s a M K R e v s w s s s s f i s v - w t s t s s f i v v - t w s s - s - s e y v  
 u z v v l t v s v v f l y v s r f f e u Q c N a s 0 : a s z l t v r f l u y v Q N a s 0 f l u s d v x u v s y v r z z r f i u z t v r f l t z  
 d f l t w 6 s t v C K a d 3 t w s y s - w s 3 w - v s s f l t w f i s - s d a d 3 l r z z z f l u s d v x 2 r z s t v f l 2 v 2 r f l u s y v s t v

$\frac{m}{jwx} -$  AAD  
 e i i U k S R  
 U a d B9A9 f e n  
 1 ZB9AG B9BA  
 V hw- V h- w S - yf z y w A898  
 R w c w - f y- x Xz jw w j- w  
 h- - y 0 - y- 1A89F A8A9

	bx x x k x x e	978D	978E	978F	9797	9798
	/80	/90	/: 0	/A0	/B0	/C0
J	aw s<=s<3Tw s<=s<3v<= aw<=s<=s<Kx z ffi v2P<=v 2 rflu Pz yzix	;B<	;A>	;3 >	8379	93;
K	aw sfl t s<=s<=v<=v<= awsyysfis<=Wziflix rflu b r zix	B37=	=3 <	=B7	493A	<B;
L	Rsv -awey fisz<=s<= Wrfl wt zix	:37	:3=	;3<8	493A	;B:
M	awsyysvss<=U- +vs<=Ps 6 Ofit z z rflu Qr	8=37	>3 B	=3=	73;	:3<
N	awsyysvss<=J -Davesyvfifis<= dsfl sz3Ufif t sz3vs<=N<=s ffis<=y6hr v d ffeDv v rxv2 h r v Wrflrxvfi vfi 2rflu cvfi vuaz zfl Kt z z z	>B:	>3>	=3>	93B7	73<
O	T <= ±6Mefl t zfl	B37<	<3>	=378	4<39	:3 7
P	awvsys<=s<=Kws vs<=Nws<=D cws s -V t fivs<=dw wws V 6h y<=ffirffirflu cv rffi eruvEcv rz <=W<=s<=gvyzffir rflu W<=s<=t tffir	=37A	=B<	=3:	48<	<3:
Q	es<= s -vs<=awy vs<=s<=s<= erfl <= r zfl rflu d<=rxv	=37A	=3 8	<B=	4<B:	4B3A9
R	aw<=w<=s<=s<=J ±fl vs -vs<= Vs<=s<=V <= fl 6Ktt<=fi fi sur zfl rflu P<=s<=u dv z v Kt z z z	>39	A37=	AB;	4<38	83:
S	Rex fl s -vs<=T fl <=s<= 6 Sflv<=fir zfl rflu Mfi fi flitr zfl	<3>	=39	=B;	>B<	>3:

Vn" w@n" anor ySM- " ff' ff' q anoy 774

bx x x k x x e	978D	978E	978F	9797	9798
/80	/90	/: 0	/A0	/B0	/C0
T Ss s Tw s s y s s v s s l s s -6 Pzlr rltz rlr flu fl r rltv Kt z z z v	737	; 3 8	; 3 <	9 3 <	= 3 <
U c w s f i N s G c v r f f 0 r v K t z z z v	= 3 9	= 3 7	= 3 9	8 3 B	7 3 B 9
V 3 W S s s a w s z s s s l z l v K t z z z v	< 3 9	< 3 >	< 3 ;	4 3 >	7 3 <
Y J v f l s - s - a w f l w s s z s s 3 a w s z s s s 3 v s s s f l s s d - s f h s . t 6 a s f f i K u f i z l z r z f l r f l u N v w f l t v E M s f i f f s d s t r f f a v t z	: 3 <	< 3 :	< 3 8	4 7 3 ;	4 7 3 - A
a S s s a w s v v s s s 0 0 t r z s l	< 3 ;	< 3 :	< 3 =	7 3 ;	; 3 =
b S s s T w w s s s v s s T v y - s s s d - s f e R f i r f l R v r f f y r f l u d s t r f f i h s f f K t z z z v	: 3 7	; 3 >	; 3 =	4 7 3 9	4 7 3 :
c 3 3 3 f S s s l s s s 6 z y v d v z v K t z z z v	< 3 7	< 3 ;	< 3 - B	4 8 3 ;	9 3 B A
f - R ... h... x 0 c n f i Y l	B 3 A	B 3 7	B 3 E	4 7 3 C	9 3 C

Ls s s s s v C J s y s d w f l w e s s 6 a v f f i z l r P x v  
 J s y s d s s y s d w f l w e s s 6 v a v f f i z l r P x v  
 a w t w s s s s s s . f i f i z a M C K ; a s - v s a M K R e v s w - s s s s f i s - v - w t s t s s l e f i v v - t w s s - s - s e y v  
 u z v f l t v s v v f l y v s r f f e u Q c N a s w : a s z l t v r f l u y v Q N a s v f l u s l v x u v s y v r z z r f l u z t v r f l t z  
 d f l t w 6 s t v C K a d 3 t w t s y s - w s 3 w v s s f l t w f i s - l a d 3 l r z z z f l u s l v x 2 r z s t v f l 2 v 2 r f l u s y v s t v

$\frac{m}{jwx} - AA\bar{E}$

**b a b i U k S**  
**f e n d m m 5**  
**B9AG6B9BA**  
**X y f y-X z y- V h- w S - yf z y x**  
**Xz jw w j- w h- - y 4A89F 5A8A9**

	bx x x k x x e	978D	978E	978F	9797	9798
	/80	/90	/: 0	/A0	/B0	/C0
J	aw s<=s<3Twe s<=s<3vs<= aw<=s<=s<Kx z ffi v2P<=v 2 rflu Pz yzix	89>3 A	89B3;	8: 93 :	8: <B9	8: B3=
K	aw sfl ts<=vs<=vs<= awsyysfis<=Wziflix rflu b r zix	8993;	89; 3-A	89<38	89B37=	89B3 9
L	Rsv -awey fiszs<6 Wrfl wt zix	8: B3 8	8; ; 3A:	8; >3 >	8<93 8	8<B3<
M	awsyysvss<=U- +vs<=Ps 6 Ofit z z rflu Qr	8; ; 3A<	8; =B7	8; >B>	8; A3 ;	8; B37
N	awsyysvss<=J -Daweyvfi fis<= dsfl sz3Ufi tsz3vs<=Ns ffis<=y6hr v d ffeDv vrxv2 hr v Wrflrxvfi vfi 2rflu cvfi vuaz zfi Kt z z z v	8<93-A	8< 3B9	8<<3-B	8<<3<	8-A3 B
O	T <= ±6Mfi t zfi	8<83A	8<>3B	8-937	8=>38	8>93<<
P	awvsys<=s<=Kws vs<=Nws<=D cws s -V t fivs<=dw wws V 6h y<=ffirffirflu cv rffi eruvEcv rz <=W<=≤ gvyzffi rflu W<=≤t tffi	8: >39	8; : 3 9	8<83<=	8<<37B	8<<38>
Q	es<= s -vs<=awy vs<=s<=6 erfl <= r zfl rflu d<=rxv	8<837	8< 3A7	8<B37>	8=73<	8-A3A8
R	aw<=w<=s<=J ±fl vs<=vs<= Vs<=s<=V <= fl 6Ktt<=fi sur zfi rflu P<=su dv z v Kt z z z v	8: 93:	8: : 3A:	8: <B:	8: =37	8: >37
S	Rex fl s -vs<=T fl <=± 6 Sflv<=fir zfl rflu Mfi fi fltr zfi	87A3-9	8883-A	88<3A	88=>3>	88>3=

Vn" w@n" anor y5M- " ff' ffr q anoy 774

bx x x k x x e	978D	978E	978F	9797	9798
/80	/90	/: 0	/A0	/B0	/C0
T Ss s Tw s s y s s v s s l s s -6 Pzlr fltz r fln flu fl r fltv Kt z z z v	8: >BB	8; 937	8; ; 3=	8; ; 3 =	8; B3<
U c w s f i n s c v r f f 0 r v K t z z z v	8: 73A;	8: ; 37	8: >3 8	8; 73B	8; ; 38;
V 3W Ss s aw szss s l zlv Kt z z z v	8; =3A	8; B3<	8 <=3A7	8= 39	8=B3B
Y J v f l s - s - a w l w s s z s s 3 aw szs s s s v s s s f l s s d - s f h s . t 6 a s f f i K u f i z l z r z s l r f l u N v w f l t v E M s f i f f s d s t r f f v t z	8; =3B	8; A3 8	8 <33=	8 <3 8	8 <3 9
a Ss s a w s v v s s s 6 0 t r z s l	8983=	89: 3=	89A3>>	89B3=	8: 73A
b Ss s T w w z s s s v s s T w y - s s s d - s f 6 R f i r f l R v r f f y r f l u d s t r f f i h s f f K t z z z v	89; 37	89B33=	8: A3 8	8; ; 3 7	8; <39
c 3 l 3 f Ss s l s s s s 6 z y v d v zlv Kt z z z v	8: 833:	8; ; 38	8; 73 A	8; ; 38:	8; <37
<b>f - R ... h... x 0 c n f i Y l</b>	<b>8: A3C8</b>	<b>8: E398</b>	<b>8A83DB</b>	<b>8AB3AB</b>	<b>8AE3B:</b>

Ls s s s s v C J s y s d w l w e s s s 6 a v f i n z l r P x v  
 J s y s d s s y s d w l w e s s s 6 v a v f i n z l r P x v  
 a w t w s s s s s s . . f i s z a M K ; ; a s - v s s a M K R e v s w s s s s f i s v - v t s t s s s f i v v - t w s s - s - s - s e y v  
 u z v f l t v s v v f l y v s r f f s u Q c N a s 0 : a s z l t v r f l u y v Q N a s v f l u s l v x u v s y v r z z r f i u z t v r f l t z  
 d f l t w 6 d s t v C k a d t w t s y s - w s 3 w - v s s f l t w f i s s 6 a d 3 l r z z f l u s l v x 2 r z s t v f l 2 v 2 r f l u s y v s t v

$\frac{m}{jwx -}$  AAT e i b a b i  
 U k S f e n  
 1 2B9AG6B9BA  
 V hw- X y f y-X z y- V h- w  
 S - yf z y x Xz jw w j- w h- - y  
 0 - y- 1A89F 5A8A9

	bx x x k x x e	978D	978E	978F	9797	9798
	/80	/90	/: 0	/A0	/B0	/C0
J	aw s<=s<3Twe s<=s<3vs< aw-s<=s<3Kx z ffi v2P<=v 2 rflu Pz yzix	: 37	939	83A;	93<8	93 B
K	aw sfl ts<=s<=vs< awsyysfiss<=Wziflix rflu b r zix	73>A	937	83<<	939	73A
L	Rsv -awsy fisz<=s< Wrfl wt zix	< 3;	: 3>	83<	: 3 9	: 3 B
M	awsyysvss<=U- +vs<=Ps 6 Ofit z z rflu Qr	8739	83 8	73>	73 9	73 <
N	awsyysvss<=J -Davesyvfifis< dsfl sz3Ufi tsz3vs<=Ns ffis<=y6hr v d ffEdv vrxv2 hr v Wrflrxvfi vfi 2rflu cvfi vuaz zfi Kt z z z	; 3=	73B;	8378	73>9	838
O	T <= ± 6Mafi t zfi	: 39	; 3;	93BB	: 3 =	93<
P	awvsys<=s<=Kws vs<=Nws<=D cws s -V t fivs<=dw wws V 6h y<=ffirffirflu cv rafi eruvEcv rz <=W<=s<=gvyzffi rflu W<=s<=t tffi	83A	; 3;	< 3-A	93BB	73-B
Q	es<= s -vs<=awy vs<=s<=s< erfl <= r zfl rflu d<=rxv	73B;	83<8	: 3:	83A	483:
R	aw<=w<=s<=s<=± fl vs<=vs< Vs<=s<=V <= fl 6Ktt<=fi sur zfi rflu P<=s<=dv z v Kt z z z	939	838	73>	83A	73B
S	Rex fl s -vs<=T fl <=s<= 6 Sflv<=fir zfl rflu Mafi fi fltr zfi	: 3<	93A8	: 3;	73<	73=>

Vn" w@n" anor y5M- " ff' ffr q anoy 774<

bx x x k x x e	978D	978E	978F	9797	9798
/80	/90	/: 0	/A0	/B0	/C0
T Ss s Tw s s y s s v s s l s s < 6 Pzlr fltz r fln fln fl r fltv Kt z z z v	; 3:	93B7	83A>	4737	: 3A
U c w s f i n s c v r f i d r v k t z z z v	: 3;	93;	93<<	9379	938A
V 3W Ss s aw szss s l zlv Kt z z z v	< 3:	93 8	; 3>>	; 3 8	: 3A:
Y J v f l s s s a w l w s s z s s s aw szs s s s v s s s f l s s s d s f h s s t s s s f f i K u f i z l z r z f l r f l u N v w f l t v E M s f i f f s d s t r f l v t z	; 3>	83 A	83B:	93A>	4737=
a Ss s a v s v v s s s o u t r z f l	737	93B<	; 3:	73B:	73;
b Ss s T w w s s s v s s T w y s s s d s f e R f i r f l R v r f f y r f l u d s t r f f i h s f f k t z z z v	83 A	; 3<	= 37	; 3=	83B9
c 3 l 3 f Ss s l s s s s s z y v d v zlv Kt z z z v	93<=	93 <	; 3-B	93>>	737
f - R ... h... x 0 c n f i Y l	: 3AA	93CE	93BC	93C8	93B9

Ls s s s s v C J s y s d w l w s s s s a v i f i z l r P x v  
 J s y s d s s y s d w l w s s s g v a v i f i z l r P x v  
 awt w s s s s s s . . f i s z a M C k ; a s s - v s s a M K R e v s w s s s s f i s s v - v t s t s s f i v v - t w s s - s - s e b e y v  
 u z v f l t v s v v f l y v s r f f e s u Q c N a s w : a s z l t v r f l u y v Q N a s v f l u s l v x u v s y v r z z r f i u z t v r f l t z  
 d f l t w s s v t v C k a d t w t s y s - w s 3 w v s s f l t w f i s s l a d z l r z z f l u s l v x 2 r z s t v f l 2 v 2 r f l u s y v s t v

$\frac{m}{j_{wX} -}$  AA7G

i U k S R U a  
 S f c i d  
 m m 1 25B9AH B9BA  
 V h- wS - yf z y w R - c w - f y-  
 x j - T - z - j w w j- w h- - y 0x  
 w 1A89G A8A9

	Y... f... ...x x p a	978E	978F
	/80	/90	/: 0
f... ...x x a a	h x jx x6d W	C 9DC3E:	C DE83A9
s5	V s±s±s±vs±V ≤ fl s±3dwf±≤cw s±6P±±irfluLv v rxv ≤yv yrfl v r rfl	: ; 873-8	: >: 3-A
t5	as±s±s±3J f± Ts±3vs±s±s±aws s s±s±s±6Mf±y±flx2P±±± vr 2r flu cvffi vu Wr ±l vflr fltv dv ±zv	9>A3<	: 7⇒7
u5	aw fl szs±vs±awfwes±s±s±c fl sz s±yys±6R±± ±lx rflu R±± vy±ffl O z fi vfl	87B<3;	88⇒3>
v5	T wv±s s±vs±awes±v±±±±±6Rv rff y rflu Qu tr ±zfl	9A: 3;	: 7: 3-9
w5	e s±± s -vs±T fl ±±± ±e rfl ± r ±zfl rflu M±fi fi fl±r ±zfl	>>3=	A9A3;
x5	cw s±vs±Q wff±v r rfl rflu R±±vffi	: 793±	: 9<B=
y5	Us±±±s±6Z yv	89B3A	8; ; 3<<
f... ...x x a	bdf hj±j l eod W a	8FA39D	98C387
f... ...x x a a	f..... x 6± W	877: 3F	87983D9
f...y... x c -x j...x 0	6± b Wfi fi b fi	8D8C37A	8EB93A8
s5	Ks±y ±±±±l ±fl±lx	89A<3;	8: >3A8
t5	W ≤Ks±y ±±±6W ≤K fiv±y	: ; 73=	: >3-8
f...yx x W ...	6Wfi e	D: 3CF	E93D9
S	Ox x -x Yx x6a c fi o	8AF837B	8C893C
R	x GW Ox x -x Yx x6h Ne c fi o	8B9B3F7	8C7F3EB
	f - R ... h... x 0 c n fi Y l	F 99F3FE	F FBC3DE



Vn" w@n" anor yM- " ff' ff' q anoy 774-

Y... f... ...x x p a	9797	9798
/80	/;0	/-0
<b>f... ...x x a h x jx x6d W</b>	<b>C EBB39F</b>	<b>D9: B3F7</b>
s5 V s5 s5 s5 vs5 V s5 f s5 d w f s5 c w s5 p s5 u r f l u L v v r x v s5 y v y r f l v r r f l	555	555
t5 a s5 s5 s5 j f s5 T s5 b v s5 s5 s5 a w s5 s5 s5 s5 s5 6 M f s5 y z f x 2 P s5 s5 v r 2 r f l u c v f f i v u W r z f l v f l r f l t v d v z v	555	555
u5 a w f l s z s5 v s5 a w f i e y s5 s5 c f l s z s5 y s5 6 R s5 z f i x r f l u R s5 v y s5 f f i 0 z f i v f l	555	555
v5 T w v e s s5 v s5 a w s5 v v s5 s5 R v r f f y r f l u O u t r z f l	555	555
w5 e s5 s5 v s5 t f l s5 s5 f e r f l s5 r z f l r f l u M s5 f i f i f l z r z f l	555	555
x5 c w s5 v s5 Q w f c v r r f l r f l u R s5 v f f i	555	555
y5 U s5 s5 s5 6 z y v	555	555
<b>f... ...x x a b d f h j g l e a d W a</b>	<b>98A3D:</b>	<b>98D3 C</b>
<b>f... ...x x a f..... x 6c W</b>	<b>8 79739B</b>	<b>8 79737F</b>
<b>f...y... x c -x j..x 0 6c b W f i f i b f i</b>	<b>8 EED3 D</b>	<b>8 FFA3 :</b>
s5 K s5 y s5 s5 6 z f f i f x	555	555
t5 W s5 K s5 y s5 s5 6 W s5 K f i v s5 y	555	555
<b>f...yx x W ... 6W f i e</b>	<b>87E3FE</b>	<b>88937C</b>
<b>S O x x -x Y x x 6a c f i o</b>	<b>555</b>	<b>555</b>
<b>R x 6W O x x -x Y x x 6h N e c f i o</b>	<b>555</b>	<b>555</b>
<b>f - R ... h... x 0 c n f i Y l</b>	<b>87 8: E 3E:</b>	<b>87 C8E3DB</b>

Ls s s s5 vC J s5 s5 d w f l w e s s5 6 a v f f i z f l r P x v  
 J s5 s5 d s5 s5 d w f l w e s s5 g v a v f f i z f l r P x v  
 a w t w s s s5 s5 s5 . f i f i z a M C K ; a s5 v s5 a M K R e v s5 w s5 s5 s5 f i s5 v v t s5 t s5 f i v v - t w s5 s5 - s5 - s5 e y v  
 u z v v f l t v s5 v f l v y v r f f i s5 Q c N a s5 0 : a s5 z f l v r f l u y v Q N a s5 6 f l u s5 l v x u v s5 y v r z z r f f i z t v r f l t z  
 d f l t w e d s5 t v C K a d 3 t w t s5 s5 - w s5 3 w v s5 f l t w f i s5 6 a d 3 d r z z z f l u s5 l v x 2 r z s5 t v f l 2 v 2 r f l u s5 y v s5 t v

m  
j w x - AA7H

i U k S R U a  
d B9A9 f c i d  
m m 1 25B9AH B9BA  
V h- w S - y f z y w A898 R w c w -  
f y- x j - T - z - j w w j- w h- - y  
Ox w 14A89G A8A9

	Y... f... ...x x p a	978E	978F
	/80	/90	/: 0
f... ...x x a a	h x jx x6d W	A: D: 39C	A E893B:
s5	V s±s±s±vs≤V ≤fl s≤3d w f s≤c w s≤6P≤s r r flu L v v r x v ≤y v y r fl v r r fl	9 9; >3>	9; B73 A
t5	as±s±s±3l f s Ts±3vs≤Ss s aw s s≤s s6M f e y d l x 2P≤s v r 2r flu c v f f i v u W r d l v f l r f l t v d v z v	8B>3B=	98A3B;
u5	aw fl sz s±vs±aw f w s y±s s≤c fl sz s±y s 6R≤ z l x r flu R≤ v y±f i O z f i v f l	>93 8	A9<37
v5	T w v s s±vs±aw s v±±s±6R v r f f y r flu O u t r z f l	99<3 >	9; 39
w5	e s≤ s -vs±T fl ≤±s ±e r fl ≤ r z f l r flu M s f i f i f l z r z f l	= 83-B	=B<3B=
x5	c w s±vs±Q w f c v r r fl r flu R≤v f f i	9873A>	9: 93 B
y5	l s±s±s6z y v	B>37	87<37
f... ...x x a a	b d f h j g j l e o d W a	8: D3DF	8BF3C9
f... ...x x a a	f..... x 6c W	DEB3E:	E7A38E
f...y... x c -x j...x O 6c b W f i f i b f i		8 9: F3DA	8 A: 73AD
s5	K s±y ±s±6K f f i z f l x	B: 937B	8 7A739
t5	W ≤K s±y ±s±6W ≤K f v±y	: 7>3<	: <73 <
f...yx x W ... 6W f i e		C: 39D	D83C9
S O x x -x Y x x6a c f i o		8 78A3E7	8 8: 93A7
R x 6W O x x -x Y x x6h N e c f i o		8 9CC39C	8: EC3CD
f - R ... h... x O c n f i Y l		C: AE3AA	D79A3BB

Vn" w@n" anor yM- " ff' ffr q anoy 77A

Y... f... ...x x φ a	9797	9798
/80	/;0	/-0
<b>f... ...x x a h x jx xgd W</b>	<b>A DAE3A8</b>	<b>A EEA3A8</b>
s5 V s s s s v s v s v s f l s s d w f s s c w s s p s s u r f l u L v v r x v s y v y r f l v r r f l	55	55
t5 a s s s s s j f s T s s v s s s s a w s s s s s s 6 M f s y z l x 2 P s s v r 2 r f l u c v f f i v u W r z l v f l r f l t v d v z v	55	55
u5 a w f l s z s v s s a w f w s y s s s c f l s z s s y s 6 R s z l x r f l u R s v y s f i 0 z f i v f l	55	55
v5 T w v s s s v s s a w s v v s s s R v r f f y r f l u O u t r z f l	55	55
v6 e s s s - v s s T f l s s s e r f l s r z f l r f l u M f i f i f i z r z f l	55	55
x5 c w s s v s s Q w f c v r r f l r f l u R s v f f i	55	55
y5 U s s s s 6 z y v	55	55
<b>f... ...x x a b d f h j g l e o d W a</b>	<b>8BA37E</b>	<b>8BA3B7</b>
<b>f... ...x x a f..... x 6 W</b>	<b>E7: 37E</b>	<b>DED3D9</b>
<b>f...y... x c -x j...x 0 6 b W f i b f i</b>	<b>8 A8E3BD</b>	<b>8 ACE3 A</b>
s5 K s y s s s 6 z f i z l x	55	55
t5 W s K s y s s s 6 W s K f v y	55	55
<b>f...yx x W ... 6 W f i e</b>	<b>EB3BF</b>	<b>EA3CB</b>
<b>S O x x -x Y x x 6 a c f i o</b>	<b>55</b>	<b>55</b>
<b>R x G W O x x -x Y x x 6 h N e c f i o</b>	<b>55</b>	<b>55</b>
<b>f - R ... h... x 0 c n f i Y l</b>	<b>C FD73BE</b>	<b>D 8AF39E</b>

Ls s s s s v C J s y s d w f l w e s s s 6 a v f i i z l r P x v  
 J s y s d s y s d w f l w e s s 6 g v a v f i i z l r P x v  
 a w t w s s s s s s . . f i f i z a M C ; ; a s - v s s a M K R e v s w s s s s f i s v - v t s t s s f i v v - t w s s - s - d e y v  
 u z v f l t v s v v f l y v s r f f s y Q c N a s v a B : a s z l t v r f l u y v Q N a s y 6 l u s l v x u v s y v r z z r f i u z t v r f l t z r  
 d f l t w 6 d s t v C K a d 3 t w s y s - w s 3 w - v s s f l t w f s s l a d 3 t r z z s l u s l v x 2 r z s t v f l 2 v 2 r f l u s y v s t v

$\frac{m}{jwx} - AA7$

i U k S i d  
 m m 1 25B9AF 6B9BA  
 V h- w S - yf z y f- yw wjw w  
 j- w h- - y 0 w z w 14A89E 5A8A9

$jx$ $u fi$	$Nx Rx x Vx x 0...x$ $U W i fi l$	$Nx Rx x Vx xa x 9787$ $U W fi fi l FDED$
/80	/90	/: 0
978=	98 BB9	8=B77
978>	9; ;B<	8>; <
978A	9; B; ;	8A7; 7
978B	9=88B	8A; 9=
9797	9>A=A	8B 8=7
9798	9A >	8B: <B

$Ls s s \leq vC$  J >:s dwfi wss s6a vfi zlr Pz v  
 $J >:s ds >:s dwfi wss s6gv a vfi zlr Pz v$   
 $awt wss \leq s s s . . fi fz aMcK ; a \leq -vs \leq aMK Rev \leq w-s \leq s s fi \leq v-vt st \leq s five v-t w s \leq - s - f6eyv$   
 $uz v vftvsv vfi yv \leq rffsnQcNa \leq vB: a \leq zltv rflu yvQNa \leq vlu \leq v x u v \leq yv r z \leq rfiuz tv rftz$   
 $d fltw6d \leq tvC Kad3twts-ws 3 w-vs \leq fltw fi \leq Lad3d r z \leq flw \leq v x 2 r \leq tvfi 2 v 2 rflu \leq yv \leq tv$



**BAB**  
Chapter

**12**

# PERBANDINGAN ANTAR KABUPATEN/KOTA

*Province Comparison*

<https://tapanulitengahkab.bps.go.id>



<https://tapanulitengahkab.bps.go.id>

**i Vg cVeRI Rg mVdgH**

**j TRWdXPb de j Ti**

74 'nynu °n© ° z or... qn©  
 xr•r"q q xn" nqnyu °r"° °  
 •r"q q x n"t qvnx°n"nxn"  
 °r©• °r• yu ©u " °rxny4  
 'r"° ° •r"q q x ©yru  
 qvnx°n"nxn" °ron" nx ©wu  
 xnyw °rmax S'q-"r°vn z r.qrxn2  
 nv© ©u " 7B<72 7B=72 7BA62  
 7BB62 86662 86762 qn" 86864

Urr"nz °r"° ° •r"q q x  
 °roryz " n qvnx°n"nxn"  
 qr"tn" z r"tt "nxn" z r©qr  
 ©nqv°v-°ny2 nv© z r"pn©°r©n•  
 •r"q q x qn.v...z nu xr ..z nu4  
 [r.©nz n xny' n qnyz °rwa.nu  
 °r"° ° •r"q q x qv S'q-"r°vn2  
 'r"° ° [r"q q x 8686.' [8686/  
 z r"tt "nxn" z r©qr x-z ov°v  
 nv© qr"tn" z rz n"snn©n"  
 qn© J qz v°v©n°vUr•r"q q xn"  
 .J qz v°q x/ qn.v. Mvx©.n©  
 Tr"qr.ny Ur•r"q q xn"  
 qn" [r"pn©n" 'v y .M©w"  
 M xpn• y/ Urz r"©.vn" Mhynz  
 Xrtr.v. .Urz r"qnt .v. °ront nv  
 qn© qn°n... •rynx°n"nn"  
 '[86864 Rny v°v qv.n"pn"t qn"  
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 n"t ©yru z r"r©n n©n

85 Y"r -s ffor °-ffipr° -s  
 qrz -t.n: upv qnfh v° •-• ffjnfir-"  
 pr"°fff3 upu v° p-"qffpff q  
 r r... ff" rn.:5 [-• ffjnfir-"  
 Mr"°fff un° orr" p-"qffpff q  
 °r r" ffz r° °v pr S'q-"r°vn.°  
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 ffor ffnqvfr-°nyz rffu-q3pn" n°°v't  
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 ffrq n p-z ov°v r q z rffu-q3 ffunff v°  
 ffrv v't [-• ffjnfir-° Kqz v°v ffnfr-"  
 qnfh z n"nt r q o ffor Nvxpff.nff  
 Qr"r.ny -s [-• ffjnfir-° n"q Mv y  
 \_rtvffnfr-° -s ffor Wv vff..-s  
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 u- yvr v° S'q-"r°vn.° ff..vff..3  
 v°pyffqv't S'q-"r°vn" pffir"°  
 /d XØn"q s-.rx" pffir"° /d XK0  
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 S'q-"r°vn" ff..vff...s-.nffyr n°ff-r



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 qn.v. x-z -"r" 3x-z -"r"  
 . r... onun" . r"q q x2 n@  
 xry nu v n" 2xr z n@n" 2qn" z v. n°v  
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rn.5.aur S'q-"r°vn" pffr"° u-  
 n.r.p- r.r.q ny°-v° pffqr ffu-°r u-  
 n.r.no.-nq3" nz ry z rz or.°:-sffr  
 Nv y-z nffp M-..°:-sffr \_r° ffoxp-s  
 S'q-"r°vn n" q ffrv.v.snz v°v° no.-nq  
 n"qz rz or.°:-sffr aXSq YV\_Sn"q  
 ffrv.v.snz v°v° u- n.r.pn...v°t -ffff  
 [rnprrr.v°t Wv°v-° no.-nq5

P-..ffr . r.v-q° or°vq° ffr pr"°ff  
 rn.3. °-° ffynff-° . °.° wppff-° v°  
 n° . yrq ff r°ffz nff °-° ffynff-°  
 s-...ffu-°r rn.°5 aur °-° ffynff-°  
 °.° wppff-° v° n" r°ffz nff-° on°rq  
 -" ffr qz -t.n° v°p p-z -"r" ff3  
 °ffpu n° ovffu3qr nffu3n"qz v° .nff-°  
 /v°ff..nff-° ny z v° .nff-° n"q  
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 °-° ffynff-° °.° wppff-° s-...97974  
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 [-° ffynff-° Kqz v°v°ffnff-° Nnff  
 n"q ffr 9797 [-° ffynff-° M"°ff5  
 Sff ffr° ffr n°°ffz °ff-° ffinff ffr  
 a-fhy Pr.fhyff \_nff /aP\_0 °v°pr  
 9797 v° p-°ff" ffnff95 /npp-.q°t  
 ff ffr °-° ffynff-° °.° wppff-° -s  
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Mhynz • oyxn°v v'v qn@ n"t  
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84 [r"q q x S'q-"r°vn nqnyu  
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 qv yn nu @ . v @ . vny S'q-"r°vn2  
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95 aur • - • ffynff- " -s S'q-"r°vn n . r .  
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 u n r y r q s - . . - " r r n . . . . z - . r . - . .  
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94 Vnw • r . @ z o u n " • r " q q x : 5  
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 a u r z r f u - q f f r q o ' f f n f f °  
 S'q-"r°vn v' ffur t r - z r f f v z r f u - q 5

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 • r.an" qv t n" n" @.n wz ynu  
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 • r" q q x • r.rz • n" • nqn  
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 @z onu qv.v. pv z r" ...© z or...  
 xrtv n@ rx-" -z v .yn" n" t n"  
 °nun/ qn" z r" ...© x-z • -" r"  
 • r" tt "nn" n4 [M\_K qn.v. °v v  
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 " ynv @z onu o...@ n" t z nz •  
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 rx-" -z v n@° or.ant nv nx@ v n°  
 • .:q x°v n4 'rqn" t xn" qn.v.  
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 " ynv @z onu @.°ro @

=4 [M\_K z r" ...© yn" n" t n" °nun  
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 yn" n" t n" °nun4 [M\_K z r" ...©  
 yn" n" t n" °nun qv.v. pv z r" ...©

<5 'r .nff- v fur .nff- orff rr"  
 ff-fhyz ny • -- ffynff- " n" q sz ny  
 • -- ffynff- " v n pr.fhv n.rn  
 n" q nff n pr.fhv ffz r3 uupu v  
 ffffnjy °ffffq v fur "ffz or...-s  
 z ny .r:qr" ff • r...877 sz ny° 5

=5 aur on°p z rn°ffir. -s fur nyfr  
 nqqrq n.v.vt s.-z rp-" -z v  
 npff v v x" - " n° Q.°° \_rtv" ny  
 N-z r°ffp [ .:qffpff/Q\_N [ Onff .: v  
 y ry5 a- p-z • v fur °r °ffffpff°3  
 ff - n° .:npur° un r orr" ffrq3  
 v • .:qffpff- " n° .:npu n" q  
 r • r" qvffir. n° .:npu aur sv:ff  
 n° .:npu v ff z rn°ffir. nyfr  
 nqqrq • .:qffprq o n4.v.fv xv° q°  
 -s rp-" -z v npff vfr °3 uvr fur  
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 sA nyffir° -s fur p-ff ff..° -fff ff  
 S' -fv4... -q°3 Q\_N [ v fur °ffz  
 -s ff-fhy nyfr nqqrq • .:qffprq  
 o ny rp-" -4 v v qfffv.°  
 /npff vfr °0n" q fur n -s fffvt v5

A5 Q\_N [ o v qffff.. pyn° vspnff-"  
 pun" t 4° s.-z C v qffffv.° ff 8A  
 v qffffv.° 5 Q\_N [ o v qffff.. v  
 pyn° v srq o ff • r° -s rp-" -z v  
 npff vfr ° °ffpu n° Kt .vffvffir.3

@ny " ynv @z onu qn.v. °ry ...u  
 °rx@..rx-" -z v n"t z r"pnx .  
 yn" n"tn" °nun [r.@n" n" 2  
 Uru @n" n" 2 qn" [r.wxn" n" D  
 [r.@z on"tn" qn" [r"ttnyx" D  
 S' q °@v.[r"t-yun" D[r"tnqnn"  
 W@x qn" Pn°D[r"tnqnn" Jv.2.  
 [r"try-yn" 'nz .nu2 Vz onu  
 qn" Mn ... byn"tD U-"°@.x°D  
 [r.qnt n"tn" Kr°n..qn" Npr.n" 2  
 \_r.n.n°w-owqn" 'r.rqnW-@.D  
 a.n"°-.@°v qn" [r.t. qn"tn" D  
 [r" rqn" Jx-z -qn°v qn"  
 Wnxn" WY z D S'-z.n°v qn"  
 U-z "xn°D Tn°n Ur n"tn"  
 qn" J° .n"°D \_rny N°@D Tn°n  
 [r...nunn" D Jqz v v°n°v  
 [r z r.v. @un" 2 [r.@un" n"  
 qn" Tnz v n" ' -°vny d nwoD Tn°n  
 [r" qvxn" D Tn°n Ur °run@n" qn"  
 Ur tv@n" ' -°vnyDqn" Tn°n ynv" n4

P-.r.°ff.3 n"q P°uvtE Wvvt  
 n"q ] ffn...v'tE Wn" ffnpffiv'tE  
 Qrpfv pff n"q Qn°Ed nff...°ff. y3  
 'r r.ntr3 d n°ff Wn" ntrz r" fB  
 n"q \_rz rqn4ff-" Kpff vfr°E  
 M-"°fffpff-" Ed u-y°ny n"q rffwy  
 a.nqrE \_r.nv...s W-ff...crupyr°  
 n"q W-ff.p.pyr°E a.n"°-.4ffff-"  
 n"q 'ff.ntrE Kpp-z z -qnff-"  
 n"q P-q 'r...xpr Kpff vfr°E  
 S's-.z.n4ff-" n"q M-z z ffl vnfff-"E  
 P°n"pnyn" q S'°ffia"pr Kpff vfr°E  
 \_rny O'ffiff Kpff vfr°E Lffv r°°  
 Kpff vfr°E [ffoyx Kqz v vffaff-"E  
 Nrsr"pr n"q M-z 4 ffj'... ' -pnvy  
 'rpfvffE Qqffpnff-"E Rffz n"  
 Rrnyff n"q ' -pnvyd -.x. Kpff vfr°E  
 n"q Yffr... 'r...xpr° Kpff vfr°5

A4 Vnw .r.@z o un" [.:q x  
 M-z r°@x \_rtv"ny K...@  
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 [M\_K n@n° qn°n..un.tn x-"°@n" 4  
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 z r"t .n"tv " ynv [M\_K .nqn  
 @u " xr3' @.unqn. " ynv .nqn  
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 xr " 372 qwnyxn" qr"tn" 766  
 .r.:r" 4 Vnw .r.@z o un"  
 z r" " wxxn" .r.xrz on"tn"  
 nt.r.t n@ .r"qn. n@n"  
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 @.unqn. nx@ °rory z " n4

B5 Q.:. ffu .nff -s Q.:°° \_rtv-"ny  
 N-z r°ffp [.:qffpff v qr.v.rq s.-z  
 Q\_N[ nff p-"°ff" ffz n.xrff .vpr°5  
 Sf v -offv r q o °ffo4fnpff't ffr  
 nyffr -s Q\_N[ rn..: vfu ffr nyffr  
 -s Q\_N[ rn..: 483 qv vqr q o ffr  
 nyffr -s Q\_N[ rn..: 48 ffr" z ffjff4  
 .y r q o 877 .r.pr" fB aur t.: ffu  
 .nff -s QN[ r .ynv° ffr v p-z r  
 t.: ffu qffiv't ffr tvr" .r.v:q5

PROVINCE COMPARISON

B4 [r"q q x z v'xv' nqnyu  
 • r"q q x n"t z rz v'xv' .n@3  
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764 Pn.v. Urz v'xv' n" Wnxn" n" .PUW/  
 z r...• nxn" " ynv • r"try n.n"  
 xro © un" z v'v z z nxn" n"  
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 qn" xro © un" qn°n...ynv" n4

774 S' qrx° [rz on"t "n" Wn" °vn  
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C5 K • r.:=" u-°r r • r"qvffir. • r...  
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875 aur P--q [- r.ff W'r .rsr.: ff  
 ffur qny z v'v ffz .r."ffutz r"ff  
 -s 9377 xpy• r..pn• vfh • r..qn 5  
 aur X-" 4P--q [- r.ff W'r .rsr.:  
 ff ffur z v'v ffz .r."ffutz r"ff  
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 py-fu'v't 3 r'qffpffr-" 3 urnyfu3 n"q  
 -ffur... on°p v'qv'qffny "rrq°5

885 aur Rffz n" Nr ry• z r"ff S'qr  
 /RNSD v' n °ffz z n... z rn°ffir.  
 -s n r.nt r npuv rz r"ff v'  
 xr qv r"°v-"° -s uffz n"  
 qr ry• z r"ffDn y-"t n"q urnyfu  
 ysr3 orv't x"- yqt rnoy3 n"q  
 un r n qrpr" ff"ff" qn.q-syv v't 5



$\frac{m}{jwx -}$  AB7A

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 i i 5d i 5 k  
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 i l n 5B9B9 B9BA  
 ff w 4f w V hw -4f - y- w -  
 S x f w 4f w S- 4w z i -  
 hw x h- - y 7 y w i w- wk wwf y-4  
 A8A8 w z A8A9

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			l fi 1	2
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			/80	/:0
78	W-s		8; ==>9	8; >>8;
79	V s < s f i s y V 6 s f i		; >9 AA=	; >A7-9
7:	es s < f i d w f s s <		: 77 B88	: 7: <A<
7;	es s < f i e w s y s z		: <8>>	: <B: 77
7<	es s < f i f s s		: 89 >A	: 8<999
7=	e t s		97=8BB	97A <>
7>	l b t z s < t s		; B: ABB	; BB BA9
7A	J s z s <		>BB-7	>>>-9=
7B	d f i s f i s y <		BB7 9; =	877: >9>
87	M s - -		: 7A >>	: 88 ==<
88	T s		; 7; BBA	; 7B7>>
89	M w f i d w s y		8 B: 8 ; ; 8	8 B: 8 ; >
8:	U s < y < t s		8 7: 7 9 7 9	8 7: ; <8 B
8;	W s d w f s s <		: <7 < 8	: ==8=
8<	Q f l t s < y Q s < v s <		8 B >>8	8 B B >8 B
8=	a s < t s < k z s s		<9: <8	< : 8<
8>	d s f l -		8: = ; 8	8: >8=
8A	d w v s y k w s y s -		<> ; B7	=>7 <
8B	K s K s s		; 87 =>A	; 8: 8>8
97	a s v s y l b s f s s		9=7 >97	9= <<8
98	a s v s y l b s		9=8 788	9= >8 B
99	l b t z s < t s d w f s s <		: 8; 7B;	: 8=>BA
9:	l b t z s < t s f s s		: A8 BB;	: A<A-B

PROVINCE COMPARISON

Vn" w@n" anor ySM- " ff' ffr q anoy 784'

axy x ...fa x n G fi	f ... - / x0 l fi 1 2	9797 <sup>80</sup>	9798 <sup>90</sup>
/80	/90	/:0	
9; Ws f s s	8; >9>	8; A>B7	
9< Ws Ks s	AB BB;	B7 <A<	
>8 d-t fny s	AB <A;	AB B: 9	
>9 es .syt s fi-	8>=79>	8>>=7	
> awl s s s s	9=A 9<	9> >A	
> ent s y e s y-	8>9 A: A	8> B=B	
> V w w s ≤	9; : <9<	9; =7 A<A	
> K -s .s-	9B8 A; 9	9B< =8	
>> asvs s v fi s ≤	99<87<	99>=>	
>A P ≤ s y - fi-	8: =78>	8: =>7>	
i x ..x k x x	8A DFF : C8	8A F: C 8AE	



Vn" w@n" anor ySM- " ff' ffr q anoy 784'

axy x ...fa x n G fi	bx f... y x f... - ..jx		f..... x ..f...- -	
	U fi l	fi c nfi	l fi p fi l fi	fi
	9787 49797 <sup>0</sup>	9797 49798 <sup>00</sup>	9797 <sup>80</sup>	9798 <sup>90</sup>
/80	/; 0	/-0	/-0	/>0
78 W-s	83>	839	73B	73B
79 V s s f i s f i s f i	83<8	83 =	: 37	: 37
7: es s < fi d w s s s	83A	83:	93:	93:
7; es s < fi e w s y s z	83<=	83<8	93 >	93 >
7< es s < fi f s s	83B7	83<	93B	93B
7= e t s	83<8	83=	83 B	83 7
7> l b t z s s	83>	83<	: 3 ;	: 3 <
7A J s z s s	83 A	83 :	< 37	< 38
7B d f i s f i s y s	83A>	83A9	= 3B	= 39
87 M s - -	83 7	83<	93B	93B
88 T s	83 7	83 <	93;	93;
89 M w f d w v s y	73;	73-B	8: 3<	8: 37
8: U s s y s	73<8	73<=	= 3B =	= 3B:
8; W s d w s s s	93B;	93B	93 ;	93 <
8< Q f i t s y Q s s y s s	83 A	83 :	83 ;	83 ;
8= a s s s s K z s s	93<8	93 =	73 <	73 =
8> d s f l -	83A	83:	73B9	73B9
8A d w v s y K w s y s -	73A	73B:	; 3 ;	; 3 :
8B K s K s s	73A=	73A8	93>>	93>>
97 a s v s y l b s f s s	83<	83 <	83<=	83<=
98 a s v s y l b s	83 ;	83 B	83<=	83>>
99 l b t z s s d w s s s	837	83<	93B9	93B9
9: l b t z s s f s s	83 8	83 <	93-A	93-A
9; W s f s s	83 9	83 >	837	837
9< W s K s s	73B:	73A	73<8	73<8
>8 d t f i y s	73<	73<9	73<8	73<7
>9 es s . y t s f i -	83>	839	83B	83B
> a w f l s s y s s	83 7	83<	83A8	83A8
> e n t y e s y y -	83>	83<	83>	83>
> V w s s	83 <	83 7	8<=	8<= A
> K s . s . -	83=	83<8	83>	83A
>> a s v s y v f l s s	83-A	83<9	83<9	83<9
>A P s y - f i -	73:	73-A	73B9	73B9
<b>i x ..x k x x</b>	<b>83E</b>	<b>83:</b>	<b>87737</b>	<b>87737</b>



PROVINCE COMPARISON

Vn" w@n" anor ySM- " ff' ffr q anoy 784'

axy n	x...fa G	x fi	a...x x f...- l fi Y	- ... B	9	hx l	Y... fi	a.x o	f...- nfi
			9797 <sup>80</sup>	9798 <sup>90</sup>		9797 <sup>80</sup>		9798 <sup>90</sup>	
	/80		/A0	/B0		/870		/880	
78	W-s		>B3=	A7B8		B<37		B<3=	
79	V s<v s f i s y W6 s fi		>>B	>>B;		BB3B		BB3<	
7:	es s< f i d w f s s<		; B3	<73 =		8773B9		8773B	
7;	es s< f i e w s y s z		8=B	8-A3-A		8783 <		8783 9	
7<	es s< f i f s s		A93 B	A: B;		BB3;		BB3A7	
7=	e t s		AA3;	AB3;		BB3<9		BB3-A	
7>	l b t z s< s		99B3A	9: 83B7		8793B7		8793B>	
7A	J s z s<		97>B>	9873;		8793 9		8793 A	
7B	d f i s f i s y<		99<3<	99B3;		8773AB		8773B<	
87	M s - -		8=7B=	8=83>		8773 9		8773 A	
88	T s		8B73 8	8B93:		B>A7		B>A=	
89	M w f i d w v s y		A=83=	A=37;		8783<		8783 9	
8:	U s< y s		8=3<9	8=3B8		8793:		8793 7	
8;	W s d w f s s<		8B>3<	9773-9		8773:		8773B	
8<	Q f l t s y Q s s y s<		A: 3A	A<3<9		8773>		8773:	
8=	a s t s t K z s s		; 9B>	:: 3=		87937B		8793B<	
8>	d s f l -		=3B;	=3<		BB3:		BB3B	
8A	d w v s y K w s y s-		::=38	::; A3 9		8783;		8783-8	
8B	K s K s s		::; <3 9	::; A37:		8783B		8783<	
97	a s v s y l b s f s s		=3;	=3>		87: B=		87; 3:	
98	a s v s y l b s		=3<	=3<		8783<7		8783=	
99	l b t z s< s d w f s s<		A>3<	AA3B7		87; 3; 7		87; 3 >	
9:	l b t z s< s f s s		87=3>	87A37=		87: 3;		87: 3B7	
9;	W s f s s		8993;	89: 3-8		BA3A=		BAB3:	
9<	W s K s s		8AB3>	8B839		B; 3A9		B; 3A>	
98	d-t f i y s		9 8-A3-A	9 8>>37		8773<<		8773-9	
99	es<. s y t s f s-		8 = 93 <	8 = >3 8		8793;		8793<7	
>	a v f l s s y s s s		; A8B3-8	; A=3-A		B>3>>		B>3A:	
>	e n t y e s y y-		<<<3 9	<<; 3B=		BB3B		BB3>	
<	V w s s<		B 8AB3=	B 9A=3B=		BB37B		BB3B<	
>	K<.s.-		; B: 73=7	; BB73<		BB39		BB3A	
>>	a s v s y v f l s s<		8 B= 3;	8 BA<3;		BB3;		BB37B	
>A	P s< y - f i		; A: 3:	; A=3A		B; 3;		B; 3<	

l s s s<w wC <sup>8</sup> Qs f i d w s a v e s v t d a 0 9 7 9 7 / d w v f l t w 0 6 a u r \_ r ' f f f f f - s 9 7 9 7 [ - > f f i n f f i - " M " o f f i / r . f f z o r . 0 .  
<sup>9</sup> Qs f i a w e - a v e s v t f e w f l 9 7 9 7 9 7 9 : / a w v e s y z s s z s z < s s < 8 6 T h e r e s u l t o f I n t e r i m P o p u l a t i o n P r o j e c t i o n  
 2 0 2 0 - 2 0 2 3 ( m i d y e a r / J u n e )  
 : l s . . . w f l t z s < v e s v t v z - s y t w v s s b s < v e s v t s z < 9 7 8 7 N w 0 v t s s y s y s v w e s y s < v e s v t s z  
 < 9 7 9 7 / d w v f l t w 0 6 T h e g r o w t h r a t e r e f e r s t o t h e c h a n g e o f t h e p o p u l a t i o n i n 2 0 1 0 ( M a y ) t o t h e p o p u l a t i o n i n  
 2 0 2 0 ( S e p t e m b e r )  
 : l s . . . w f l t z s < v e s v t v z - s y t w v s s b s < v e s v t s z < 9 7 9 7 / d w v f l t w 0 v t s s y s y s v w e s y s < v e s v t s z < 9 7 9 8  
 d f l t w 6 d w C K a d d a n T w f l v e s w s < M s f i f l W y w e L [ ' 4 f f i f f f f i p ' S ' q - " r o n n q q W V v f f . . - s R - z r K n v . .  
 : : A a n . n " f f j a r " t n u \_ r t r " p v P t f f i r . 9 7 9 9

$\frac{m}{j \text{ w} x} - \text{ABZB}$

e i i U k S R  
 U a d B9A9 f d &l  
 i l n 1 Z5B9AG6B9BA  
 V hw- V h- w S - yf z y w  
 A898 R w c w - f y- x h- - y x y w  
 i w- wk w wf y-0 - y- 1A89F A8A9

axy n	x...fa G	x fi	978D	978E	978F	97971	979811
/80	/90	/:0	/:0	/:0	/:0	/:0	/:0
78	W-s		<38	;3<	<3;	83A7	938
79	V s< s f< s y W6 s fi		=3B	<3B	<3	47B;	:3
7:	es s< s f< dwfs s< s		<38	<3B	<3:	73 B	:3;
7;	es s< s f< wesy s z		<3;	<37	<3A	473=	93<=
7<	es s< s f< f s s		;3<	;3<	;3-9	83<7	:3;
7=	e t s		;37	;3=	;3A	473>	939
7>	lbt z s< s		<37	<3=	<3>	73B	:3A<
7A	J s z s s		<3 A	<3B	<3-	738	:3:
7B	d f l s f i y s		<3:	<3A	<37	838	:37
87	M s - -		;3:	<38	;3A9	47B;	93<
88	T s		<38	;3<<	;3-7	47A7	93<
89	M w f d w v s y		<37	<3<	<3A	483A	93:
8:	U s y s		<3<	<39	<3>	47A=	:3A
8;	W s dwfs s s		;3<=	<39	<3:	73-8	939
8<	Q f l t s y Q s s y s s		<39	<3;	;3;	47B:	939
8=	a s t s t K z s s		<3;	<3A<	<3A>	473A	93;
8>	d s f l -		<3<	<3A	<37	473-8	93<
8A	d w v s y K w s y s -		<3=	<3>	<3A	473;	93A>
8B	K s K s s		;38	;3 A	;3<	473 8	93<
97	a s v s y U s s f s s		<3;	<3A	<3-8	83;	:3=
98	a s v s y U s s		<3-8	<3=	<3-	83A	:3A:
99	lbt z s< s dwfs s< s		<3B	<3>	<3<	73A7	:3A9
9:	lbt z s< s f s s		<38	<3	<3<	73>	:3A:
9;	W s f s s		;3:	;39	;3<	83A	939
9<	W s K s s		;3A8	;3>	;3A9	83=	939=
>8	d-t f y s		<3>	<3<	<37	483 =	937
>9	es< .s y t s f i -		<3-8	<3>	<3B	473 >	93<
>	a w f l s s y s s s		;3 8	;3A7	;3A9	483A8	839<

Vn" w@n" anor y5M-" ff' ffr q anoy 7848

axy x ...fa x n G fi	978D	978E	978F	97971	979811
/80	/90	/:0	/;0	/<0	/=0
> ent -y e-sy-	<3;	<3>	<3<	4737	93<8
< V wv s ≤	<38	<39	<3:	483A	93<9
≠ K -s.-	<3 B	<3 =	<3<	483A:	93<:
>> asvsy + fl s ≤	<3 9	<3 <	<3<	473:	93<
≠ P ≤ sy - fi-	=38	=3:	=3<	73 A	93<
<b>i x ..x k x x</b>	<b>B39</b>	<b>B3E</b>	<b>B39</b>	<b>487D</b>	<b>93&lt;8</b>

$Ls s \leq vC$      $J \leq ds \text{ dwfl wss s6a vffi zlr Pz v}$   
 $d \text{ fl tw6d} \leq tvC$      $Kad3t wtsys-ws 3 w-v \leq \text{fl tw fi-s6ad3dr z z fl u-slv z r z tvfl 2 v 2rflu} \leq yv \leq tv$   
 $J \leq ds \text{ ds} \leq ys \text{ dwfl wss s6gv a vffi zlr Pz v}$

<https://tapanulitengkrabms.9043>

PERBANDINGAN ANTAR KABUPATEN/KOTA

m ABTC c i f f d 8d  
 jwx - i l n l 5B9AG B9BA  
 d x- f f w x h- - y x y w  
 i w- wk wwf y-0 w z 4A89F A8A9

axy n	x...fa G	x fi	978D	978E	978F	9797	9798
	/80		/90	/:0	/:0	/<0	/=0
78	W-s		9; 3A	993-8	993B7	9: 39	9; 3:
79	V s s f s y V6 s fi		; A3 7	; 93 B	; 73-;	; 83 8	; : 3;
7:	es s ≤ f d w f s s ≤		9B3 A	9<3=	9; 39	9: 3=	9<38
7;	es s ≤ f r e w s y s z		< 3 <	; A3<	; =BB	; >BB	; B3<
7<	es s ≤ f f f s s		:: 3<	9B37	9A3>	9A3 8	9B39
7=	e t s		8A3 B	8<A9	8<3A	8=7<	8=38
7>	l b t z s d s		; 93 <	; 83>	; 83>	; 93>	; <3;
7A	J s z s ≤		A: 3>	> 3;	> 7<	=3 9	=3B
7B	d f s f i y ≤		B83 <	A73 7	=3:	> 3;	>=BB
87	M s - -		9; 3A	9: 3B	983A=	993:	9: 39
88	T s		; 739	: <3 =	:; 3A	: =3<	: A38
89	M w f d w v s y		B>3B	AA3-9	A; 3;	A=3=	B93-9
8:	U s y s		88; 3 8	87<3 =	87: 3A	8783A>	87=3B
8;	W s d w f s s ≤		< 3 <	< 9>	< 9>	< 3A	< 3=
8<	Q f l t s y Q s y s ≤		8A3 <	8=3:	8=37	8>39	8A38
8=	a s ± s ± K z s s		; 3<	; 3=	; 39	; 3B	; 3B
8>	d s f l -		8A3:	8=3A8	8<3B	8<3A7	8=3A
8A	d w v s y K w s y s -		< 3:	< 73 B	; A3-B	; B3A	< 3=
8B	K s K s s		< 3B8	< 3A	< 73 =	; B3A	< 3B
97	a s v s y l b s f s s		9>3A	9=3A9	9=37=	9=3B	9A3 >
98	a s v s y l b s		9; 3 9	9: 3 <	9: 3 >	9: 3A >	9<3A
99	l b t z s d s d w f s s ≤		: > 3A9	:: 3;	: 73 >	9A3=	: 73 =
9:	l b t z s d s f s s		; 73;	: =3 <	:; 3=	:; 3A=	: > 3:
9;	W s f s s		: B3 >	: =3:	:; 3 9	:; 3;	: < 3;
9<	W s K s s		9: 3:	9: 37	993A	993:	983<
>8	d-t f i y s		883B8	873A8	873A9	873 B	873A
>9	e s . . s y t s f i -		9; 3-B	9<3 7	9; 3;	9: 3;	9; 3
>	a w f s s y s s s		9<3 <	99378	983B	983:	9937=
>	e n t y e s y y -		8B37=	8=3;	8=3 7	8=3 9	8=3 =
>	V w v s ≤		97; 39	8A=3 <	8A: 3-B	8A: 3;	8B: 37:
>	K - s . s -		8A3:	8=3>	8<38	8<3B8	8=3 =
>>	a s v s y v f l s s ≤		8>3=	8=3B	8=37=	8=3<	8>3A
>A	P ≤ s y - f i		: 73A	9<3B8	9: 37=	9: 3;	9; 39
i	x . . x k x x		8AB: 3D	8: 9AFE	89E93A	8 9E: 3F	8: A: 3C

d f l t w 6 s t v C Kad3d w-d s f i t ± ≤ f i -W6 -s f v d w s 0 6 l a d 3 r z z z f l u s i l v z 2 Y r z s i r f i t z s r t s i t z d d v

PROVINCE COMPARISON

m  
jwx - ABZD

b i f f d 8d  
i l n 5B9AG B9BA  
W w S - - - Xz- x h- - y z y w  
i w- wk wwf y-4A89F A8A9

axy n	x...fa G	x fi	978D	978E	978F	9797	9798
78	W-s		=738	=739	=83<	=83:	=93;
79	V s s f s y W6 sfi		=>3:	=>3A:	=>3:9	=>3:8	=>3:8B
7:	es s< f d w f s s<		=A3-B	=B37	=B3<	>789	>73:
7;	es s< f r e w s y s z		=>3=	=A3>	=A3=	=B3:	=B3-8
7<	es s< f f f s s		>93 A	>938	>3:	>3>	>3=
7=	e t s		>3A>	>3 A	>39	>3=	>3 B
7>	l b t z s s s		>877	>83 B	>83;	>978	>97B
7A	J s z s s<		=B37	=B3 B	=B39	>79B	>73 B
7B	d f l s f i y s<		>83A:	>93 B	>93A	>3<	>3
87	M s - -		>73 =	>73AB	>83 9	>83<	>83A;
88	T s		>3<	>38	>3<	>3:	>3A:
89	M w f d w v s y		>3;	>39	>3:	>3;	>2<
8:	U s y s s		=B39	>79>	>73=	>877	>83 <
8;	W s d w f s s<		=B3A<	=73<	=83-8	=83AB	=93 <
8<	Q f l t s y Q s s y s s<		=>3 7	=>3=	=A3A:	=A3A>	=B3 8
8=	a s s s k z s s		=>3<	=>3:	=>3>	=>3-8	=>3;
8>	d s f l -		=B3:	=B3B	>73<	>73=	>73A:
8A	d w v s y k w s y s -		=B3=	=B3-B	>798	>79;	>73=
8B	K s K s s		=>37	=>3>	=A3 <	=A3 =	=A3A
97	a s v s y l s f s s		=A3;	=A3>	=B39	=B3A<	>738
98	a s v s y l s s		=>39	=>3-8	=A3=	=A3<	=A3;
99	l b t z s s d w f s s<		>73 A	>73A	>83 B	>83 7	>83-8
9:	l b t z s s d f s s		>73-8	>83A	>83:	>83-8	>83A>
9;	W s f s s		=73<	=83A	=83A	=93 =	=939
9<	W s K s s		<83=	=73 9	=83;	=83-8	=83B
>8	d t f i y s		>93A	>93<	>3 8	>3=	>3;
>9	e s s s y t s f i -		=>3 8	=A37	=A3-8	=A3<	=A3;
>	a w f l s s y s s s		=>3;	=>3A	>A3>	>A3<	>B3>
>	e w t y e s y -		>37	>3-7	>3A	>3>	>3 9
>	V w s s<		=B3A	A73<	A73>	A73A	A838
>	K s s -		>3<	>38	>3AB	>3AB	>78
>>	a s v s y v f l s s<		>3A8	>3 A	>3=	>39	>3 A
>A	P s< y - f i		=>3A	=A3:	=B3 7	=B3 8	=B3-8
i	x...k x x		D73D	D83E	D83A	D83D	D937

d fl t w d s t v C Kad3d w d s f i n t s f l - w 6 - s f i v d w s 0 6 l a d 3 l r z z s l u s i v x 2 Y r z l i f f i s z s t s i s i d v

m  
j w x - ABZ

i U k S i d R U  
a S f d & i  
l n l ZB9AG6B9BA

V h- w S - y f z y f- R w w w R -  
c w - f y-x h- - y 7c y w 0 w z w 14  
A89F 5A8A9

axy x...fa x n G fi	978D	978E	978F	97971	979811
/80	/90	/:0	/:0	/<0	/=0
78 W-s	9: <79	9<;;	9=89	9>8B	9A <=
79 V s < s f i s y W6 s fi	9=> B	9A; <9	: 7 8=B	9B: >B	: 8 89>
7: es s < f i d w f s s <	; 9 B=7	; < B=8	; B: B>	; A A7>	< 7 B: =
7; es s < f r e w s y s z	9: ; B<	9; B;	9=88B	9>A=A	9A < <
7< es s < f i f s s	99 > 8A	9; :: 9	9=7>8	9=<9<	9>B8>
7= e t s	: = < 77	: B 97;	; 8 A8:	: A 97;	: B < 8>
7> l b t z s < s	= 7 = 9	= : ; <	=> 9 B<	> 7 ; ; B	> 9 8 =
7A J s z s <	; ; < 9	; > A <<	< 8 ; >	< 7 ; 8 >	< 7 7:
7B d f i s f i < <	: A 9 8 8	; 8 7: A	:: A:	; 7 7 8 7	; 9; 8 B
87 M s - -	9A: 89	: 7 9 9 A	: 9 9 >	: 7 9 > 8	: 8 8 < A
88 T s	; ; A 7 9	; = B 8 >	; B 7 9 B	< 8 B=8	< : < 7
89 M w f i d w v s <	; ; 7 > 8	; = A A 9	; B 8 =>	< > 8 9 9	< 8: B;
8: U s < < s	: = 7 8:	: A < 7;	; 7 > 8	; 8 B B >	; ; < =
8; W s d w f s s <	8 A 8 8 =	8 B = B <	9 8: < 9	8 B B <	9 7 9 =
8< Q f l t s < Q s < < s <	9>; A;	9 B: 9<	: 8 8=B	: 8 7 =>	: 8 A 9 A
8= a s < s < K z s s	9 8 8 B 8	9 9 < A B	9: > >	9: 9 A 9	9: A: ;
8> d s f l -	9 B B A B	: 9; > 7	: < 8 <	:: : B =	:: ; < ;
8A d w v s < K w s y s -	: B: 8 8	; 9 9 B;	; < ; < 8	:: : = 7 8	; < B; <
8B K s K s s	> 9 > B	>>; 8 =	A 8: B>	A <: < 9	B 7 7: 7
97 a s v s < U s f s s	: > < 9	; 7 8 <	; 9 7 B =	; = B 9 9	; B A < 7
98 a s v s < U s s	: < B > 8	: A; < A	: B A B 8	; = 8 9 8	; B A 9:
99 l b t z s < s d w f s s <	> 7 B <	<; ; <	> 7: =	B 7 7: 9	B > 7 > A
9: l b t z s < s f s s	< 8 8 < 9	= 7: 9	= > A	= 8 =>	> 8 7 8
9; W s f s s	9 9 8 A 7	9: > 9 <	9 < ; < 7	9 < 9 >>	9 = 7 ; ;
9< W s K s s	8 > B B <	8 B; 8:	9 9 8 A =	9 8; 7 A	9 9 9 B A
> 8 d t f i y s	< : : 9	< B B <	= 9; >	= 9 = 7 B	= ; < 7
> 9 es < . s y t s f i -	; : : >	; > 8 <	< 7 A 7 8	< 9: 8 8	< 9 9 =
> a w f l s s < < s <	; B; >	< 8 B > B	< ; < 8	< 9 7 < 8	< 9; >
> e n t < e < s y y -	: 8 A A 9	:: B 7 =	: < A; =	: < 8; 9	: = 9 B 9
< V w v s <	B 7 ; ; 8	B A 9 =	8 7 < < 9;	B B A 7 7	8 7: < 7 B

Vn" w@n" anor yBM- " ff' ff' q anoy 784

axy x...fa x n G fi	978D	978E	978F	97971	979811
/80	/90	/: 0	/; 0	/< 0	/= 0
≠ K -s.-	: = < B	: B: 7 <	; 9 7 < A	; 7; AA	; 8 > 9
>> asvsy -v fi s ≤	9; A > 7	9 = > =	9A; > A	9A AAB	9B > BB
≠ P ≤ y - fi	: 9 :: 8	: <; A >	: A < 7 B	; 9 < <	; ; 78A
i x ..x k x x	AE 77A	B8 A9D	BA C97	BA FDF	BD BD7

Ls s s ≤ v C J sy s dwl vss sga vffi zlr Pz v

J sy s ds sy dwl vss sgv a vffi zlr Pz v

d fl tw 6 ≤ tv C KadBt wtsys - w s 3 w v s ≤ fl tw fi - s l ad 3 r z z fl u s l v x 2 r z ≤ tv fl 2 v 2 r flu ≤ yv ≤ tv

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m ABZ  
 j wx -  
 n f i n f i 2 n f  
 d 8d nf d2 d 8d  
 1 Z5B9AI 6B9BA  
 f y w c mw - 0kc f1w z -h- - y 7  
 c y w c mw - 0kc a1x h- - y 7  
 c y w 0 w 1A89H5A8A9

axy n	x...fa G	x fi	978F /90	9797 /:0	9798 /:0
78	W-s		9: B<<7	9<=7:: =	9<=7:: =
79	V s<vs f<sy W6 sfi		9: A7 >7	9=B8 A7A	9=B8 A7A
7:	es s< fi-dwfs s<		9=>=: =A	9 B7: 7; 9	9 B7: 7; 9
7;	es s< fiwvsysz		9=>7AA>	9 A: 7 AA;	9 A: 7 AA;
7<	es s< fif s s		9: ; ; 89	9 < 9 A: =	9 < 9 A: =
7=	e t s		9: <B: 9=	9 =A-B<	9 =A-B;
7>	lbt z s< s		9 =A 99:	9 AB<9AB	9 AB<9AB
7A	J s z s<		9 <B: BA>	9 A8; > <	9 A8; > ;
7B	d fi s fi < y <		9: 79 >=	9 =>7AB	9 =>7AB
87	M s - -		9: 7>A79	9 <7; 8B<	9 <7; 8B<
88	T s		9 A9B <<B	: 7>: <	: 7>: <
89	M fi-dwvs < y		9 B: A <9;	: 8AA <B9	: 8AA <B9
8:	U s < y < s		9: BA: >>	9 >88 777	9 >88 777
8;	W s dwfs s<		4	4	4
8<	Q fl t s < y Q s < y s<		9: 9=7A:	9 <9; 7: :	9 <9; 7: 9
8=	as < s < K z s s		4	4	4
8>	ds fl -		9: ; ; 7 A=>	9 = A <>>	4
8A	dwvs < y Kwvsys-		9 =; ; 9<	9 A=B 9B9	9 A=B 9B9
8B	K s K s s		9 B; 8 9=B	: 8B8 <B	: 8B8 <7
97	asvs < y l b s f s s		9 <<7 >8A	9 >>>A;	9 >>>A;
98	asvs < y l b s		9 <98 9=A	9 < A9>	9 > =777
99	lbt z s< s dwfs s<		9 >78 87=	9 B: 7 B>	9 B: 7 B>
9:	lbt z s< s f s s		9 =; ; 9=	9 A=B 9B:	9 A=B 9B9
9;	W s f s s		9: 89 >9:	9 <7B < =	9 <7B < =
9<	W s K s s		4	4	9 <7: ; <
>8	d-t f y s		9 >A: : >	: 77; 777	: 77; 777
>9	es < .syt s fi-		9 =>78 7>	9 A99; 9<	9 A99; 9<
>	awf s s < y < s s		9: 7<: <	9 <78 <8B	9 <78 <8B
>	ent < y e < y y-		9: : AA; 7	9 < >A>	9 < >A<
>	V w v s<		9 B=B A9<	: 999 <<>	: : 9B A>



Vn" w@n" anor y5M- " ff' ff q anoy 784<

axy x ..fa x	978F	9797	9798
n G fi			
/80	/90	/:0	/:0
K ≤.s.-	9;7B >8;	9=8; >A8	9=8; >A8
asvs y v-fl s ≤	9; =: 9<	9=97B	9=97B
P ≤ y - fi-	9: BB 7A;	9=7: 9; =	9=7: 9; <
<b>i x ..x k x x</b>	<b>9: 7: A7: 3A:</b>	<b>9 AFF A9: 37C</b>	<b>9 AFF A9:</b>

d fl t w6d ≤ tvC M ≤ ewesys Tw.s.v s ≤ e s ≤ fl - y s - a ≤ -d fl s ws f s s6Wrf l ≤ v rfluerrl fix r z fl Z tv ≤ d fir v r f r r a ≤ zltv

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# BerAKHLAK

Berorientasi Pelayanan Akuntabel Kompeten  
Harmonis Loyal Adaptif Kolaboratif

# ST 2023

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# DATA

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— *Enlighten The Nation* —



**BADAN PUSAT STATISTIK  
KABUPATEN TAPANULI TENGAH**  
*Statistics of Tapanuli Tengah Regency*

Jl. N. Daulay, Pandan, Sumatera Utara 22611

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