j∏l]Xjl]Tfl]jgm[i]af]aUalagf®vFfTdTlXjgVVTkagf®@mlv]afkTWWXWl]TluZjXXafimajqak afWakhXfkTUdXlgl]X[ggWoazX®l]TlmfanXjkalaXkXpaklZgjl]XkTcXgZkmV]afimajq®RTfWSl]Tloal]gml all]XqVXTkXlgUXmfanXjkalaXk®v

Af MTI Tfgl] Xjlae XgZ[jXTI Imje gadaf mfan Xjkala AKk MGjXka WKfl 9Wo TjW@MCXnalaf] ak af Tm[mjTd TWWJXkk MVXXKUJTI XWU]gk Xnqilm Xko] al/] Zjge I] XUX[affa[TfWmfladfgo] Tn XV] TjTV Xjar XWgmj af klalmhagf Mv 7 XfljTdlgl] Xn Tom Xk gZl] X Lfan Xjkalq gZ7] al/T[gMCXna XphdTaf XWLak Thjg Zgmf W Vge e ale Xfllg uZjXXWge gZafi majq Mv K] ak ZjXXWge M] X hjg VdTae XWLuak gmj af] Xjal Tf VXMv

D gjX jXVXfI dd GjXk avXfI @TffT @gdUgjf d jTq gUkXjnXW] TI uXWrvTI agf k] gmdWfgl UX afl Xf WXWl g e TcX hXghdX Vge Zgjl TUdWa ak e XTfl I g e TcXl] Xe I] af c lf an Xjk ab4k k] gmdWUX XphXVI XWl g hjgnavXl] X Vgf Wa agf k o al af o av lf TjWl] gm ll ll Tf Wl] XjXZgjX kl jgf [WakT jXXe Xfl ll af WXhXf WXfl bm W e Xfl ll Tf Wl] Xi mxkl agf af [gZkl m UUgjf Tkkme hl agf k ll VTf zgmjak] af Tf Xfnajgf e Xfl gZl] X [jXTl Xkl ZjXXWge ll K] X o gjWk gZ@TjhXjl @mhV] af k ll CXnal Tf W jTq VThl mjX Ugl] I] X khaja Tf Wl] X hjge ak X gZl] X L f an Xjk aq gZ7] av T [gll 6 XvTmkXl] X L f an Xjk aq ak Vge e all XWl g ZjXX Tf WghXf af i majq af Totle Tl Xjk ll f mTjTfl Xxk Totle Xe UXjk gZl] X L f an Xjk aq Vge e mf aq l] X Ujg TWkkl hgkk abdX dTl am WXl g khXTc lo ja Xll dakl Xf ll V] Totl Kf [Xll Tf WdXTjf ll 9p VXhl af kgZTj Tk dae al Tl agf k gf l] Tl ZjXXWge TjX f XVXkk Tjq l g l] X Zmf V agf af [gZl] X L f an Xjk aq Vge e mf aq u g Wak Vmkk Tfq hjgUdXe l] Tl hjXkXflk alkXdZv

FZVgmjkXNI] X aWXTk gZWaZZXjXfI e Xe UXjk gZI] X L fan Xjk aliq Vge e mfalq o addgZl Xf Tf Wi mal X f Tl mj Todq Vgf z ali Ni 6 mh ali ak f gl l] X h jgh Xj jg dX gZl] X L fan Xjk aliq lg Tll Xe hl l g k] aXdWaf Wan ali whi Tdk Zjge aWXTk Tf Wgh af ag f k l] Xq y f Wmf o XdVge XNi Wak T[jXXTUdXNi gj Xn Xf WXXh ql gZZXf k an XNi dl] gml[] l] X L fan Xjk aliq [jXTl ql n Todn Xk Van ada qN Tf WTdl] gml[] Todle Xe UXjk gZl] X L fan Xjk aliq Vge e mfalq k] TjX af l] X jXkh gf ka Uada q Zgj e Taf l Taf af [T Votae Tl X gZe mhm Tdj Xkh XVI Ni Vgf VXjf k TUgml Van ada q Tf We mhm Tdj Xkh XVI VTf f Xn Xj UX mk XWTk Tbmkl ay VTl ag f Zgj Votgk af [gZZ Wak Vmk kag f gZ aVXTk Ni] go Xn Xj gZZXf kan X gj Wak T[jXXTUdXl] gk X aVXTk e Tq UX l g kge X e Xe UX jk gZgmj Vge e mfalq Ni

K] X ZJXXWge Ig WXUTI X Tf WWk Vmkk I] X e Xjak gZVge hXl af [aWXTk WgXk fgl \(\text{gZ}\) Zgrjk X\(\text{e} \) XT I] TI af Wan \(\text{A}\) WnT dk e Tq kTq o \(\text{IT} \) TI Xn Xj I] Xq o \(\text{ak} \) \(\text{No} \) JX A \(\text{IT} \) A \(\text{IT} \

 khXXV] 🛮 Unh UqghXfoq TfWha[gjgmkoq VgflXklaf[l]XaWXTkl]Tll]XqghhgkX\\]AfWXXWIZgklXjaf[l]X TUanalqgZe Xe UXjkgZl]X LfanXjkalqVge e mfalqlg Xf[T[XafkmV]WXUTlXTfWWXoaUXjTlagfafTf XZZXVlanXTfWjXkhgfkaUdXeTffXjakTfXkkXflaTdhTjlgZl]X LfanXjkalqkXWmVTlagfTdeakkagf\\[

k T VgjgddTjqlgl] X L fan Xjkalqtk Vge e ale Xfl lg hjgl XVI Tf Whjge gl X ZjXX XphjXkkagf \(\text{M} \)e Xe UXjk gZ l] X L fan Xjkalq Vge e mfalq e mkl Tdkg TVI af Vgf Zgje alq o al] l] X hjaf Van dX gZ ZjXX XphjXkkagf \(\text{M} \) dl] gm [] e Xe UXjk gZ l] X L fan Xjkalq Vge e mfalq TjX ZjXX lg Vjala Var X Tf WVgfl Xkl l] X na Xo k XphjXkkXWgf VTe hmk \(\text{M} \) Tf Wlg Vjala \(\text{Var} \) X Tf WVgfl Xkl khXTcXjk o] g TjX af na XWl g XphjXkk l] Xaj na Xo k gf VTe hmk \(\text{M} \)] Xq e Tq fgl gUkl jm \(\text{M} \) gj gl] Xjo ak X af l XjZXjX o al] l] X ZjXXWge gZgl] Xjk lg XphjXkk na Xo k l] Xq jXb XVl gj Xn Xf ag T] X XKg l] ak Xf Wll] X L fan Xjk alq] Tk T kg dXe f jXkhgf ka Jadaq fgl gf ag lg hjge gl X T an Xaq Tf WZXTj dXkk ZjXXWge gZ WXUTl X Tf WWX ab XjTl ag f \(\text{Um} \) Tdkg lg hjgl XVl l] Tl ZjXXWge o] Xf gl] Xjk Tl Xe hl lg jXkl ja M ali

K] X aWkTk Tf WhXjkhXVI an Xk gZWaZZjXfI Vge e mf alq e Xe UXjk o and ZjXi mXfI otj Tf Wi mak X f Tl mj Todd UX af Vgf z aM @ @go XnXj\\ka dyf [Tk XphjXkkagf WgXk fgl nag dTl X L f an Xjkalq hg da Aakk\\alpha ak fgl I] X L f an Xjkalq k jg dK Ig Tll Xe hI Ig k] a XdWaf Wan a Awh T dk Zjge a AwkTk Tf Wghaf ag fk I] Xq y f Wwak T[jXXTUdX gj XnXf gZZXf kan X\\kappa N] adX I] X L f an Xjkalq [jXTl otj n Tohn Xk Tf WXph XVI k Van adalq af Wak Vgmjk X\\\alpha Tf WT dl] gm [] Todd Vge e mf alq e Xe UXjk TjX jXkhgf ka UdX Zgj e Tafl Tafaf [T VTe hm k Vobe Tl X gZ e mhm Tdj Xkh XVI \\alpha Vgf VXjf k TUgmh Van adalq Tf We mhm Td jXkh XVI VTf fgl UX mk XWTk T e XTf k Zgj kmh hj Xkkaf [I] X Wak Vmk kag f gZaVXTk\\alpha] go XnXj Wak T[jXXTUdX gj gZZXf kan XI] gkX a WXTk e Tq UXI g kge X Vge e mf alq e Xe UXjk\\alpha

II. A--)& a1&, +

K] $X L f an X j k a q k l j g f [c q X f V g m j T [X k j X h g j l k g Z G j g] a U a X W 7 g f W m M j X [T j W X k k g Z o] g X f [T [X W a f l] X V g f W m M <math>\mathbb{Z}$ 9 n X f \mathbb{Z}] X L f an X j k a q V g X k f g l] T n X b m j a k W A M a g f g n X j l] <math>X L f a n X j k a q o a c d l T c X

hjge hlTVlagflghjgnaVX $Zgjl]XkTZXlqTfWoXodUXaf[gZl]XjXhgjlaf[afWanaWhTdTfWl]XUjgTWXjVTehmkVge enfalq<math>\mathbb N$

K]ak Ggoalvq VgnXjk hjg]atJahXWVgfWmNll]TlgVVmjk gfl]XUTkak gZkXpl]TlWgXk fglZTodo al]afl]XWKyfalagfTdgjbmjakWaNlagfTdjXimajXeXflk gZl]XZXWKjTdjX[molTlagfkXkkXflaTdlgl]XLfanXjkalqgZKmolkTkKaloKAO Ggoalvq\[

III. D"8+&1&, +0

<u>Vik gZ6aTk</u>e XTfk VgfWmVII]TIak af nagdīlagf gZTL fan Xjkalq hgoBAVq⊠jmodN⊒gjjX[modīlagf TfWI]TIak e glan TIXWUq Wak Vjae af Tigjq UaTk T[Tafkl ⊠gj]TIjXWIgo TjW∐gl]Xjaf Wan aWmTolk gj[jgmlnk UTkXWgfI]TI af Wan aWmTolk gj[jgmlnkthjglXVIXWkITImk⊠

K] X L fan Xjk åq hjgl XVl k ZjXX XphjXkkagf gZaVKTk \(\) Xn Xf aZl] Xq TjX mfhghmoTj\(\) UXVTmk X l] ak ak nal Tdaf hjge glaf[oKTjfaf[af Tf XWmVTlagfTdk Xllaf[\(\) \(\) jXXWge gZkhXXV] hjgl XVl k Vgfljgn Xjka TdaVKTk \(\) Tf Wxn Xf gZZXfkan X Tf W] mjl ZmdoTf[mT[X\(\) Tk khXXV] VTf fgl UX obe al XWgfl] X UTk ak gZl] X aVKT al XphjXkk Xk TolgfX\(\)

<u>8 Tqk</u>e XTfk Umkaf Xkk WTqk TfWXpVomWKk Tfql TlmjWTq⊠TfqlmfWTq⊠TfWTfqWTqgfo]aV]l]X LfanXjkalq ak VogkXW0 TVlagfko]aV]]VgU g ∰ XfWKjf[gpl**gf(3f)kOWTata(f)k**khzv**)K[5)**XXafn[3 3 3 E fklam∯

I]XqUXdaXnXeTqVgfklalmhXWakVjaeafTlagfTfWgj]TjTkkeXfl\\\DTfqafVa\\\XflkgZ\\\dakVjaeafTlagfTfWgj]TjTkkeXfl\\\DTfqafVa\\\XflkgZ\\\dakVjaeafTlagfTfWgj]TjTkkeXfl\\\TfUXXZZ\\ManXqdpT\\\WMj

V. P/, "! 2/"0 #, / I+3"01&\$a1&+\$ a+! R"0,)3&+\$ C, * -)a&+10

A. C, * * "+ &+\$ 1%" I+3"01&\$a1&, +

AZalak WM Xje af XWI] TII] XIXje k gZI] ak GgdaVq] TnX UXXf nagdTlXWII] XLfanXjkalqo addlTcXklXhk WXka[fXW IghjXnXfI jXgVVmjjXfVXgZI] X gZZXfWaf[VgfWmVlII af VohrWaf[hglXflaTdWakVahdafTjqTVlagfT[TafklI] X gZZXfWaf[hTjlqII

K]XLfanXjkalqjXVg[farXkl]TlafkgeXVTkXk\\WKkhalXTfafnXkla[Tlagf\\]ale TqUXaehgkkaUdKlg
WKlXjeafXo]Xl]Xjl]XTdbK[XWhagdTlagfkgZl]akhgdaVq]TnXafZTVlgVVmjjXW\\]AfkmV]VTkXk\\\]lX
LfanXjkalqeTqlTcXfgfWakVahdafTjqTVlagfWXka[fXWlgjXafZgjVXl]XXZZXVlanXfXkkgZl]akhgdaVqTfWlghjXnXflZmhmjXnagdTlagfk\\]

FfVXI] X L fan Xjkalq] Tk TWWJXkk XWVgfVXjfk jTak XWo al] jXkh XVI lg Wak Vjae af Tlagf TfWgj] TjTkke Xfl 🛭 al o addTkkme XI] Tl] X hjgUdKe ak fgl Vgflaf maf[af fTlmjX mfdKk al ak af Zgje XWgl] Xjo ak X 🗈 D Xe UXjk gZl] X L fan Xjkalq 7 ge e mfalqo] g UXdaKn XI] Xq] Tn X T[Taf UXXf Wak Vjae af Tl XWT[Tafkl TfWgj] TjTkk XWaf nagdTlagf gZl] ak hgdaVq e mkl jXhgjl |] ak jXgVVmjjXfVX ae e XWaTl Xdq hmjkmTfl |g|] ak hgdaVq 🖂

E. A--"a) R&\$%10 , # Pa/1&"0

K] X L fan Xjkalq gZZXjk I g Ugl] h TjlaXk Thh X Tdja[] I k Zjge T WXI Xje af Tlagf jX[TjWaf[jXkhgfkalJanalaq $\mathbb N$ hh X Tolk e mkl UX[jgmfWXWafgfXgjegjXgZl] X Zgoddjo af[jTlagfTdXk

- w GjgVXWrjTdajjX[mdTjalq1] Tl TZZXVlXWl] X gmlVge X gZl] X e TllXj3
- w EXo XnaWKfVXI] TI o Tk fgl jXTkgfTUdq TnTadTUdXTII] XIae XI] X WXIXje af Tlagf jX[TjWaf[jXkhgfkaUadaqo Tk e TWX] Tk Vge XIg da[]II] TI VgmdWTZZXVII] X gnhVge X gZI] X e TII Xj3
- w K]XafnXkla[Tlgjk ⊠gjWKVakangfeTcXjk]TWTVgfzaMlgZaflXjXklgjUaTkZgjgjT[Tafkl7gehoTafTlkgjHXkhgfWKflk[XfXjToobtgjl]XafWanaWmTdhTjlaKkafhTjlaVmoTj⊠TfWl]TlUaTkTZXXNXWl]XgmhVgeXgZl]XeTllXj3TfWgj⊠

hhXTolk e mkl UX kmUe all XWaf o jalaf [IgI] X HXkhgfkaUolX F' VXjgjl] Xaj WXka[fXX o al] af ynX Umkaf Xkk WTqk gZl] X WTl XI] X ThhXTolf [hTjlq o Tk fglay XWgZl] X gmhVge X gZl] X af nXkla[Tlagf \(\text{N} \) K] X HXkhgfkaUolX F' VXjgjl] Xaj WXka[fXXk] ToldhjgnaWK fglavX gZl] X ThhXTolgl] X fgf ThhXTolf [hTjlq\(\text{N} \) g] Tk ynX WTqk Ig kmUe al Tojall Xf jXkhgfkXIgl] X ThhXTol] av ThhXTollK] X fgf ThhXTolf [hTjlqk] ToldUX obe al XWlg gfX TfWgf od gfX ojall Xf jXkhgfkXIgl] X ThhXToll

Lhgf jXVX ahl gZl]Xfgf ThhXT at [hTjlqtk jXkhgfkXlgl]XThhXT at [hTjlqtk jXkhgfkXlgl]XThhXT

- w K] X ThhXTdg' VXj Zgj e Tll Xjk o al] kl TZZ jXkhgf WXflk ak l] X 7] aXZ @me Tf HXkgmj VXk F' VXj gj l] Xaj WXk aj f XXII
- w K]XThhXTdg′VXjZgjeTllXjkoal]ZTVmdqTfWhgklWgVlgjTdkV]gdTjZXddgojXkhgfWXflkakl]X Mal/XGjgngklZgj≝TVmdqZZTajkgjl]XajWXka[fXX⊠
- w K] X ThhXTdg' VXj Zgj e Tll Xjk o al] klmWXfl jXkhgf WXflk ak l] X 8 XTf gZl lmWXflk 🛭
- w K] X ThhXTdg' VXj Zgj Tddgl] Xj jXkhgf WXflk akl] X MavX GjXkavXfl gZHakc D Tf T[Xe Xfl 🛭

K] X ThhXTdg' VXjtk jXnaXo o addUX UTkXWgf dq gf I] X o jall Xf jXVgjWTf Wo addf gl af VdnWK e XXI af [k gj WakVnhkkagfk o al] I] X hTjl aVk gj hXjkgff XdWajXVI dq af ngdhXWaf I] X af nXkl a[Tl agf \(\text{N} \) K] XjXZgjX\(\text{N} \) I] X ThhXTdaf [hTjl q k] gmdWaf VdnWX Tf q kmhhgjl af [WgVme Xflk o al] I] Xaj o jall Xf ThhXTda K] X ThhXTda' VXj e Tq Vgfkmd o al] I] X HXkhgfkaUdX F' VXj jX[TjWaf [e Tll Xjk gZhjgVXWnjX\(\text{N} \) ThhjghjaTl X\(\text{N} \)

K] X ThhXTdg' VXj o addakkmX T y f Tdo jall Xf WXVakagf I g Ugl] h Tjl aXk Tf Wl] X HXkhgf kaUdX F' VXj WXk VjaUaf [I] X jXkmdl gZl] X ThhXTdTf Wl] X jTl ag f TdX Zg j I] X jXkmdl \mathbb{Z} X WXVakag f gZl] X ThhXTdg' VXj ak y f Td \mathbb{Z}

F. D&O &-)&+a/6 A 1&, +

fqklmWXfloandbo]gak WXlXje afXWITZlXjTfafnXkla[Tlagflig]TnXXf[T[XWaf WakVjae afTlagfTfWgj]TjTkke XflafnagolTlagfgZl]ak hgobWqoandbUXkmUbXVllgWakVahodfXlmhlgTfWafVorhWef[Xphmolkagfli8akVahodfXk]TodbUXae hgkXWUql]X8XTfgZllmWXflk gjWXka[fXX [i

A. R")a1"! P,)& &"0

8 ak VolgkmjX gZN jgf[Zmod7 gfWmN/ITfWGjglXVI agfZjge HXITdaTl agfGgdaVq

GjX[fTfVqEgf8akVjæafTlagfGgdaVq

IImWXfI7gWXgZ7gfWmM

Kalo KAO Ggod Aq

Gjg[jXkkanX8akVahdafXGgdaVq

B. A--/, 3a)

K] ak Gg davq ak ThhjgnXWUqI] X mf WVjkal f XWTf WXZZXVI an X Tk gZI] X WTl X o jall Xf UXdgo II hhjgnXW

RKaldKS

8 TI X 9ZZXVI an X

R"3&0&, + R", /!

hhj