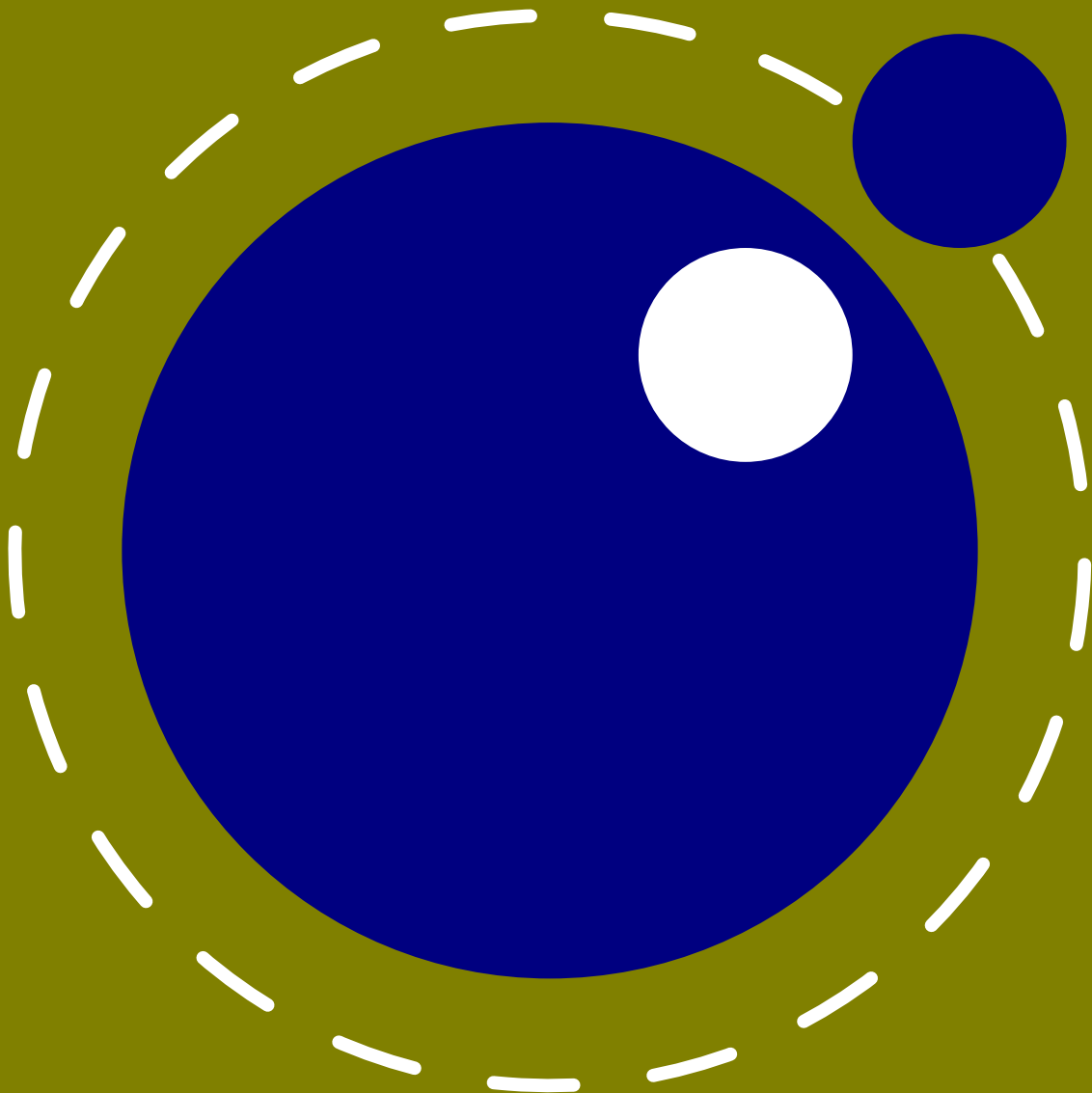


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<ck Yj Yfž]b fYUWU]b[hUh ghUHY gca Y XYW]g]cbg k YfY XY`UmYX VYWUi gY hYmX]Xb h[c k Y` k]h U W ffYbh ghUV`Y j Yfg]cb" H\]g]g k \mUh hY &\$\$, 7CBH9LH a YYh]b[hcgY dfYgYbhU[fYfYX hUh k Y Vēi `X a cj Y cb k]h U Zc`ck i d HU[[YX A 9H5H9LžU bUa Y k Y U`fYUXm\UX]b a]bX Zcf U k \]Yž Vi h Ug @ 5]g Ub]a dcfhUbh Vēa dcbYbž]h [ch Yl dUbXYX hc @ 5A 9H5H9L" H\]g Zc`ck i d]g U `][\h Y][\h Vēa dUb]cb hc @ 5H9L hUh k]` VY a U]bHU]bYX U`cb[g]XY" A cfY UVci h hY fYUgcbg Zcf h]g Zc`ck i d Ug k Y` Ug hY d\]cgcd\mVY\]bX]h WUb VY Zci bX]b hY XcW a Ybhg]XYgW]V]b[hY XYj Y`cda Ybh" 8i f]b[@ 5H9L XYj Y`cda Ybh =_Ydh fUW_ cZ k \Uh \UddYbYX]b U gYf]Yg cZ XcW a Ybhgž dUfhg cZ k \]Vx k YfY di V`]g\YX Ug Ufh]WYg]b i gYf [fci d `ci fbU`gž Vi hU` UfY]b hY 7CBH9LH X]ghf]Vi h]cb" =X]X hY gUa Y k]h hY XYj Y`cda Ybhcz@ 5A 9H5H9L"

H\Y @ 5A 9H5H9L Yb[]bY]gž Ug gU]XžU `][\h Y][\h j Yfg]cb cZ @ 5H9Lž hUh Zcf bck HUf[Yhg 7CB! H9LH" K Y k]` i gY]h Zcf dchg]V`mXfUgh]WYl dYf]a Ybhg Vi h k]h ci hU YW]b[@ 5H9L" 5g k Y WUb YUg]`mUXUdh 7CBH9LH hc gi ddcfhVchž bc chYf a UWfc dUW_U[Y k]` VY \Ufa YX k \Yb fZcf]b! ghUbWē]bhYfZUWg VxUb[Y Ug dUfhcZUb Yl dYf]a Ybh" CZVēi fgYž k \Yb k Y Vēbg]XYf gca Yh]b[hc VY i gYŽ `ž]h WUb VY dcfHYX VUW_ hc @ 5H9Lž Vi hcb`mk \Yb hYfY UfY [ccX fYUgcbg Zcf Xc]b[gc UbX k \Yb bc Vēa dUh]V`]hm]ggi Yg UfY]bj c`j YX" K \Yb Vēbg]XYf]b[h]g Zc`ck i d cbY Vēbg]XYf! Uh]cb k Ug hUhU`YUb UbX a YUb j Yfg]cb k]h Ub Yl hYbg]cb a YVxUb]ga]g U V]h WcgYf hc cf][]bU` H9L" CZVēi fgYž VYWUi gY k Y U`gc \Uj Y bYk df]a]h] Ygž h]g]g bchYbh]fY`mhfi Y" H\Y a cj Y hc @ 5 U`fYUXma YUbh hUh gca Y UgdYVWgž YgdYVWU`mgmghYa XYdYbXYbhcbYgž bc `cb[Yf a UXY gYbgY UbX hYfYZcfY \UX VēbgYei YbWg Zcf hY]bhYfZUW hUhY gmghYa `Yj Y"

H\]g a Ubi U` W ffYbh`m\Ugei]hY U V]hczcj Yf`Ud k]h hY @ 5H9L a Ubi U` Vi hgca Y VxUdhYfg UfY fYa cj YXž chYfg UXXYX UbX hY fYgh\Ug VYYb fUbx k]` VY Ž fhYfēUXUdhYX" ⇒hU`gc X]gW ggYg hY fā U]bēX] YfYbWg" Gca Y cZ hY bYk df]a]h] Yg cf Ž bWh]cbg hUhg\ck i d]b @ 5A 9H5H9L a][\h g\ck i d]b @ 5H9L Uh gca Y dc]bhž chYfg a][\h bchž gc Xcb hHU_Y h]g a Ubi U` Ug fYZfYbW Zcf @ 5H9L` : cf bck]h]g Ub Yl dYf]a YbhU` Yb[]bY]b k \]Vx k Y WUb VxUb[Y h]b[g Uh k]` Vi h k]h 7CBH9LH]b HUbxYa gc hUh h]g a UWfc dUW_U[Y k]` _YYd k cf_]b["

: cf 7CBH9LH i gYfg hY @ 5A 9H5H9L Yb[]bY k]` VYVēa Y hY XYZUj `h" H\Y 7CBH9LH j Uf]Ubh Zcf h]g Yb[]bY]g HU[[YX @A HL" H\Y dU]f WUb VY i gYX]b dfcXi Wh]cbž ` ghUg k]h @ 5H9L UbX A ? ⇒] " ⇒b ZUWē a cghi gYfg k]` dfcVUV`mbchfYU`mbch]W hY X] YfYbW" ⇒b gca Y WUgYg hYfY k]` VY U Xfcd]b dYfZcfa UbWžXi Y hc a cfY k cf_ VY]b[XY`Y[UhYX hc @ 5žVi hcb hY Uj YfU[Y dYfZcfa UbW k]` VY VYHfž U`gc Xi Y hc gca Y VxUb[Yg VY`ck hY \ccX cZ hY Yb[]bY"

5g h]g Zc`ck i d]g WcgY`mfY`UhYX hc 7CBH9LH XYj Y`cda YbhžUbX VYWUi gY k Y Yl dYVhghcW_ @ 5H9L hc VY i gYX ci hg]XY hY 7CBH9LH dfcdYfž hYfY k]` VY bc gdYWU` a U]]b[`]gh bcf Vēj YfU[Y fēf dc`i h]cbē cb hY @ 5H9L fY`UhYX a U]]b[`]ghg" K Y \Uj Y hY 7CBH9LH a U]]b[`]ghg Zcf hUh" ⇒ Xi Y h]a Y hY gci fW VēXY k]` VY dUfhcZ hY fY[i `Uf 7CBH9LH X]ghf]Vi h]cb"



H\]g a Ubi U` gca Yh]a Yg fYZYfg hc @ 5H9LžYgdYV]U`mk \Yb k Y HU` cZ ZYUhi fYg Vta a cb hc Vch\ Yb[]bYž Ug k Y` Ug hc @ 5A 9H5H9Lž k \Yb]h]g a cfY gdYV] Whc h\Y Zc`ck i d" 5 gi VghUbh]U` Ua ci bh cZ h]a Y k Ybh]bhc h\Y hfUbg]h]cb UbX a cfY k]` [c]bž gc]Z mci k Ubh hc Vta d`U]b UVci h @ 5A 9H5H9Lž Xcb h Vch\Yf a Y" CZ Vti fgYž]Z mci fYU`mbYYX dfcZYgg]cbU` gi ddcfh k]h\ h\YgY Yb[]bYg ftf H9L]b [YbYfU`ž mci WUb U`k Um9 Vtb9]XYf VtbHUW]b[h\Y XYj Y`cdYfg"

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fYa Uf_. @ 5A 9H5H9L XYj Y`cda Ybh]g a cghmXcbY Vm< Ubg < U[Yb UbX 5`Ub 6fUg`Ui ž k \c `cj Y d`Um]b[k]h\ h\Y h\fYY `Ub[i U[Yg]bj c`j YX" 5bX Ug i gi U` A c`WU A]_`Uj YWa U_Y gi fY U` Vta d`Yg k Y` cb h\Y Vi]`XVch]bZUghfi Wi fY" HYgh]b[]g XcbY Vm7CBH9LH XYj Y`cdYfg UbX i gYfg" A Ubm h\Ub_g Zcf h\Y]f dUh]YbW`

fYa Uf_. K \Yb h\YfY UfY bcb!]bhf i g]j Y ZYUhi fYg h\UhU`gc a U_Y gYbgY]b @ 5H9Lž h\YgY k]` VY Udd`]YX]b h\Y Yl dYf]a YbHU` VfUbW\ fghž gc h\Uh h\YfY]g bc]bhYfZYfYbW\ k]h\ h\Y ghUV`Y fY`YUgY"

fYa Uf_. A cgh 7CBH9LH i gYfg gYYa U`k Um9 k]`]b[hc _YYd i d k]h\ h\Y `UhYgh j Yfg]cbg k \]W\ a YUbg h\Uh @A HL]g hYghYX k Y`" K Y WUb h\YfYZcfY gUZ`mWU]a h\UhYbX cZ &\$%- h\Y VtXY \Ug VYVta Y ei]hY ghUV`Y" h\YfY UfY bc Vta d`U]bh9 UVci h dYfZcfa UbW\ fcb a m`Udhcd h\]g a Ubi U` Vta d`Yg Uh &&") ddg k]h\ @A HL j Yfgi g &\$"+ ddg Zcf h\Y @ 5H9L a Ubi U` k]h\ A ? =J E" DfcVUV`m bc cbY bch]W]g]hž Vi ha Ya cfmVtbgi a dh]cb ghYdk]gY [chfYXi W\X hcc" 5bX "" h\Y V]bUfm]g gh]` VY`ck ' A Y[U6mYg cb U` d`UhZcfa g"



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H\]g]g U fYZfYbW a Ubi U`žbchU hi hcf]U" H\]g a YUbg h\Uh k Y X]gW gg W\Ub[Yg fY`Uh]j Y hc hfUX]! h]cbU` Hg\ UbX U`gc dfYgYbh bYk ž bW]cbU`]m 5g U WcbgYei YbW k Y k]` fYZf hc WcbWdhg h\Uh k Y Uggi a Y hc VY _bck b cf h\Uha][\ hVY YI d`U]bYX `UHYf" 6YW]i gY h\Y @ 5Hg\ UbX @ 5A 9H5Hg\ Yb[]bYg cdYb i d Hg\ h\YfY ggi XXYb`mei]hY gca Y a cfY hc YI d`U]bžYgdYWU`mUVci h\Y k UmU fhc VYŁ hmdYgYhghfYUa a cj Yg h\fc i [\ h\Y a UW]bYf m < ck Yj Yfž X]gW gg]b[U` h\Uh]b XYHJ` a U_Yg bcha i W\ gYbgYž VYW]i gY XYYd _bck `YX[Y]g cb`mfY`Yj UbhZcf h\cgY k \ c k f]hY WcXY bchdcgg]V`Y k]h\ fY[i `Uf Hg\ UbX k \ c UfY U`fYUXmZJa]`Uf k]h\ h\YgY]bhYfbU`g fcf k]`]b[hc gdYbX h]a Y cb [i f]b[]hci h"

Gczh\Y Uj YfU[Y i gYf XcYgb hbYXX hc _bck a i W\ UVci hk \Uh]g]b h\]g a Ubi U" : cf]bghUbW Zcbhg UbX `Ub[i U[Yg UfY bcfa U`mXYU`hk]h\]b h\Y a UWc dUW_U[Y h\Uh mci i gY" A Ygg]b[Ufci bX k]h\ bcXY `]ghg]g U`gc cZhb bchfYU`mbYXXYX Uh\Y i gYf `Yj Y" =Z mci Xc a Ygg Ufci bXž mci X VYhYf _bck k \Uh mci fY XYU]b[k]h" F YUX]b[H\Y Hg\ 6cc_ Vm8cbU`X ? bi h\]g U [ccX]bj Ygha Ybh cZ]a Y h\Yb U`gc VYW]i gY]hg [ccX hc _bck k \YfY]hU` ghUfhYX" 5 a cfY gi a a Uf]n]b[cj Yfj]Yk]g []j Yb Vm Hg\ VmHcd]W VmJ]Wcf 9]^_ci h" Mci a][\ hk Ubh hc dYY_]b H\Y !Hg\ a Ubi U` hcc" 6i h ""]Z mci fY \YfY VYW]i gY cZ @ 5ž h\Yb U` mci bYXX hc _bck]g h\Uh mci WUb WU`]h Zfca k]h\]b U fi b" =Z mci k Ubh hc `YUfb h\Y `Ub[i U[Yž ħ ghfYUX h\Y k Y` k f]hYb @ 5 Vcc_" H\Y a UWc dUW_U[Y h\Uh mci i gY dfcVUV`mk]` dfcj]XY UZYk k fUddYf a YW\Ub]ga g Vi h\Y VUg]WPX] fYWh` i U Wca a UbX h\UhXcYg h\Y `cV]g.

PX] fYWh` i UohYI " df] bhfl" <] h\YfY`Łq

Mci WUb di hWcXY VYhk YYb W f`mVfUW]g Vi h]Z]hg U`ch mci WUb U`gc di h]h]b U `Y UbX `cUX h\Uh `Y k]h\ h\Y i gi U` @ 5 Wca a UbXg" =Z mci Xcb h _bck k \Uh h\]g a YUbgž mci XY b]hY`mbYXX hc \Uj Y U`cc_ Uh\Y @ 5 Vcc_ fgh"

=Z mci gh]` XYW]XY hc fYUX cbž h\Yb]hg [ccX hc _bck k \UhbcXYg UfYžgc k Y Xc Uei]W_]bhfcXi W]cb \YfY" =Z mci]bdi h\]g hYI h

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Yj Ybhi U`mk Y k]` [YhU`]b_YX `]ghg cZbcXYgž k \W\]b 5G7=Ufh`cc_g`]_Y.

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K \Yb k Y \Uj Y U dUfU[fUd\ž k Y UW]i U`m[Yh gca Yh]b[.

O` cWU` dUfQ 012 < 012] 012 O[` i YQ 012 H 012 \ 012 Y 012 f 012 Y 012 O[` i YQ

9UW\ W\UfUW]Yf VYWca Yg U gc WU`YX [`md\ bcXYž U fYWcFX k]h\ dfcdYfh]Yg`]_Y h\Y W ffYbh Zcbž h\Y W\UfUW]Yf WcXY UbX h\Y W ffYbh`Ub[i U[Y" GdUW]g VYWca Y [`i Y bcXYg" H\YfY UfY a UbmbcXY hmdYg h\Uh k Y k]` X]gW gg `UHYf" 9UW\ bcXY dc]bhg VUW_ hc U dfYj]ci g bcXY cf bYI hbcXYž []j Yb h\Uh h\YgY YI]gh" Gca Yh]a Yg a i `h]d`Y W\UfUW]Yf UfY fYdfYgYbhYX VmcbY [`md\ gžgc cbY WUb U`gc [Yh

O` cWU` dUfQ 012 < 012] 012 O[` i YQ 012 H\ 012 Y 012 f 012 Y 012 O[` i YQ



5bX a UmVY gca Y V\UfUWVfg [Yhdcg]h]cbYX fY`Uhj Y hc YUW\ ch\Yfžgc k Y a [\hgYY.

O`cWU`dUfQ 012 < 012 O_YfbQ 012] 012 O[`iYQ 012 H\ 012 Y 012 f 012 Y 012 O[`iYQ

h`gU`gc [ccX hc _bck VYZcfY\UbX h\UhHgL]gVUg]WU`mWVbhYfYX Ufci bX WYUUh]b[dUfU[fUd\gUbX dU[Yg" H\Y dUf Vi]`XYf HU_Yg U`ghUbX VfYU_g]h]bhc `]bYg" 5hgca Y dc]bh\cf]ncbHU`V`cVg UfY k fUddYX]bhc j Yfh]WU`cbYg" @]bYg UfY gc WU`YX Vcl Yg UbX WUb VY gYdUfUHYX Vm[`i YždYbU`h]Yg UbX a cfY" H\Y dU[Y Vi]`XYf UVW a i `UHYg`]bYg UbX k \Yb ZYUg]V`Y Hf][[Yfg Ub ci hdi hfci h]bY h\Uh k]`HU_Y h\Y `]ghgc ZUf" 7cbghfi W]b[h\Y UWU`U`dU[Y]g bchdUfhcZHgL Vi hXcbY i g]b[df]a]h] Yg h\UhdYfa]ha Ub]di `Uh]cb cZVcl Yg" H\Y fYgi `h]g\UbX`YX VUW`hc HgL UbX i g\YX hc U fčZHyb D8: k `Y"

H\Y @ 5HgL Yb[]bY dfcj]XYg \cc_g Zcf @ 5 VčXY UhbyUf`mYj YfmfYUgcbUV`Y dc]bh]b h\Y dfcWgg. Vč`YW]b[VčbhYbHž \md\YbUh]b[ž Udd`mj[Zcbh ZYUhi fYgž VfYU_]b[]bhc `]bYgž YhW H\]g a YUbg h\Uhmc i WUb cj Yf`cUX HgL g bUhi fU`VY\Uj]ci fžk \]W gh]`]g h\Y VYbW a Uf`" K \Yb k Y fYZYf hc WU`VUW_g k Y a YUbg h\YgY \cc_g" H\Y HgL Yb[]bY]hgY`Z]g dfYhm k Y`cdh]a]nYX Vi h k \Yb mc i _]W_]b a i V\ @ 5 VčXYž mc i k]`bch]WVg h\Uh dYfZcfa UbWV Xfcdg" 8cb hV`Ua Y UbX Vch\Yf h\Y Ui h\cfg k]h\ dYfZcfa UbWV]ggi Yg" b 7CB HgL H cj Yf) \$i cZ h\Y h]a Y WUb VY gdYbh]b @ 5ž Vi hgc ZUf k Y X]Xb h[Yha UbmVč a d`U]bhg UVci hY]WYbWV

K \YfY d`U]b HgL]g VUg]WU`mU VUg]WZfUa Yk cf_ Zcf k f]h]b[U gdYWV WghmYž a UWfc dUW_U[Yg `]_Y 7CB HgL H UbX @HgL dfcj]XY h\Y i gYf U k \c`Y `ch cZ UXX]h]cbU`hcc`g hc a U_Y XcW a Ybhg `cc_ [ccX" H\Ym\]XY h\Y X]fhmXYHj]g cZ Zcbh a UbU[Ya Ybhž `Ub[i U[Y XYa UbXgž hi fb]b[ghfi WU`fY]bhc hmdYgYh fYgi `hgž k fUdd]b[dU[Ygž]bWi X]b[]a U[Ygž UbX gc cb" Mc i g\ci `X VY Uk UfY cZ h\Y ZUW h\Uh k \Yb mc i _cc_]b mc i f ck b VčXY hc a Ub]di `UHY `]ghgž h\]g WUb]bhYfZYfY k]h\ h\Y a UWfc dUW_U[Y h\Uh mc i i gY" 9UW gi WVgg]j Y ghYd Yl dYVWg U WfHj]b fYgi `hUbX]Zmc i a Ygg Ufci bX hc a i Vž h\Y Yb[]bY Yj Ybhi U`ma [\hVUf_ UbX ei]h" hWUb Yj Yb WUg\ž VYWU i gY hYgh]b[Yj Yfnk \YfY Zcf k \Uhi gYfg WUb Xc k fcb[]g bc fYU`cdh]cb"

K \Yb mc i fYUX UVci hbcXYg]b h\Y Zc`ck]b[V\UdhYfg]hg [ccX hc _YYd]b a]bX h\Y]f Vč a a UbXg h\Uh fY`UHY hc h\Yb" < YfY UfY U ZYk .

P\Vcl	\`] gh \cf]ncbHU` Vcl
Pj Vcl	j `] gh j Yfh]WU` Vcl k]h\ h\Y VUgY`]bY Uh h\Y Vchca
Pj hcd	j `] gh j Yfh]WU` Vcl k]h\ h\Y VUgY`]bY Uh h\Y hcd
P\g_] d	[` i Y \cf]ncbHU` g_]d k]h\ cdh]cbU` ghfYhW UbX g\fb_
Pj g_] d	[` i Y j Yfh]WU` g_]d k]h\ cdh]cbU` ghfYhW UbX g\fb_
P_Yfb	_Yfb \cf]ncbHU` cf j Yfh]WU` I YX g_]d
PX] gWfYh] cbUf m X] gW	\md\YbUh]cb dc]bh fdfYž dcghž fYd`UWV
PVXUf	[` md\ U V\UfUWVf
P\fi`Y	fi`Y U \cf]ncbHU` fi`Y
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PhYl hX] fYWh] cb X] f	U V\Ub[Y]b hYl hX]fYWh]cb

HYl hf]bhYfgdYfgYX k]h\ a UWfcgVč a Yg Zfca Ub]bdi ha YX]i a " H\]g WUb VY U `Yžhc_Yb `]ghž a UWfc VcXmVč" Uf[i a Ybhgž gca Y]bhYfbU` ei Ubh]hmfi]_Y U bi a VYfž @ 5ž YhW A UWcg [Yh Yl dUbXYX" b h\Y dfcWgg HgL WUb YbhYf U [fci d" b g]XY h\Y [fci dž V\Ub[Yg hc fY[]ghYfg [Yh gUj YX cb U ghUW_ž UbX fYghcfYX UZHyf `YUj]b[h\Y [fci d" K \Yb VčbX]h]cbU`g UfY YbVč i bhYfYXž Ubch\Yf _]bX



cZbYgh]b[\UddYbgž UbX U[U]b h\YfY]g U ghUW_]bj c`j YX" Hc_Ybgž Yl dUbg]cbž ghUW_gž]bdi h`Yj Y`g UfY U` hYfa g i gYX]b h\Y bYl hV\UdhYfg" 8cb hk cffmž h\Ym`ccgY h\Y]f a U[]WcbVW mci i gY HgL U `ch" Mti \Uj Y UWWgg hc a cghcZ h\Y]bhYfbU`g UbX k \Yb bchž Uh`YUgh]h]g dagg]V`Y hc ei Yfmgca Y ghUHy k Y fY]b cf `Yj Y` k Y fY Uh"

K \Yb k Y hU_ UVci hdUW_]b[]hWUb a YUb hk c h\]b[g" K \Yb HgL \Ug Wcbgi a YX gca Y hc_Ybg h\Uh fYdfYgYbh hYl h h\Y bYl hWUb \UddYb" K \Yb h\Y hYl h]g di h]bhc U gc WU`YX P\Vcl]h fbcfa U`nt fgh[Yhg \md\YbUhYXž bYl h`][Uhi fYg UfY Vi]`Xž UbX bU`m_Yfbg UfY UXXYX" 9UW\ cZ h\UhghU[Yg WUb VY cj Yf`cUXYX i g]b[@ 5 WcXY" K \Yb h\YgY h\YfY ghU[Yg UfY b]g\YXž h\Y X]a Ybg]cb cZ h\Y WcbhYbh]g WU`W`UHXY UbX h\Y Vcl [Yhg]hg k]Xhž \Y][\h UbX XYdh" K \Uh \UddYbg k]h h\Y Vcl XYdYbXg cb k \Uha UWcg Xc k]h]h"

H\Y ch\Yf h\]b[h\Uh WUb \UddYb]g h\Uh h\Y hYl h ghUfhg U bYk dUfU[fUd\ " =b h\Uh WUgY gca Y fK]fYVW]cbU`Ł]bZcfa Uh]cb]g di h]b Zfcbhž]bXYbhUh]cb]g dfYdYbXYX UbX gca Y g_]d UddYbXYX Uh h\Y YbX" 5[U]b h\Y h\YfY ghU[Yg UfY Udd`]YX Vi h h\]g h]a Yž UZhYfk UfXgž h\Y `cb[`]bY]g Vfc_Yb]bhc `]bYg UbX h\Y fYgi `h]g Y]h\Yf UXXYX hc h\Y WcbhYbh cZ U Vcl cf hc h\Y a U]b j Yfh]WU` `]ghfh\Y fi bb]b[hYl hgc hc gUnt" H\]g]g WU`YX dUf Vi]`X]b[" 5hgca Y dc]bh HgL XYWXYg h\Uh Ybci [\]g Ybci [\ UbX]hk]` hf][[Yf h\Y dU[Y Vi]`XYf" Gcž Vi]`X]b[]g Ubch\Yf WcbVWdh k Y k]` YbWti bhYf" 5bch\Yf Yl Ua d`Y cZ U Vi]`XYf]g h\Y cbY h\Uh hi fbg Ub]bhYfa YX]UhY a Uh\ `]gh]bhc gca Yh\]b[hmdYgYh"

K fUdd]b[gca Yh\]b[]b U Vcl]g WU`YX dUW_]b[" 5XX]b[gca Yh\]b[hc U `]gh]g XYgWVYX]b hYfa g cZWcbhf]Vi h]b[" H\Y a cfY Wca d`]WUHYX dfcWggYg UfY k fUddYX]bhc Vi]`XYfg" : cf bck h\]g g\ci `X VY Ybci [\ hc YbUV`Y mci hc i bXYfghUbX h\Y bYl hV\UdhYfg" H\Y hYl h]g bch Ug Yb`][\hYb]b[UbX YbhYfhU]b]b[Ug 8cb ? bi h\g Vcc_gž gcffmž





%* H\Y]bhYfbU`g

& 8] YfYbWg k]h\ @ 5H9L

5g @ 5A 9H5H9L]g U`YUbYf UbX a YUbYf @ 5H9L žh\]g W\UdhYf k]` X]gW gg k \Uh]g [cbY" K Y ghUfh k]h\ h\Y df]a]hj Yg h\Uhk YfY XfcddYX"

Zcbhg P` YhhYfgdUWwZcbh Pw\dmZcbh PYl dUbX[`md\g] bZcbh P] [bcfY`] [Uhi fYg] bZcbh
PhU[W\XY P` YZh[\cgh Pf] [\h[\cgh
VUW_YbX PXj] Yl hYbg] cb PXj] j Uf] UV` Y PXj] ZYXVUW_ PdXZYl hYbg] cb PdXZj Uf] UV` Y
PdXZZYXVUW_ PXj] Yl hYbg] cb PXf UZhacXY Pci hdi hacXY
X]a Ybg]cbg PdU[Y` YZhczgYh PdU[Yf] [\hczgYh PdU[YhcdcZZgYh PdU[YVchhcacZZgYh
PdU[Y\Y] [\h PdU[Yk] Xh\
fYgci fWg PgUj YVcl fYgci fW Pi gYVcl fYgci fW P` UghgUj YXVcl fYgci fW] bXYl PgUj Y] a!
U[YfYgci fW Pi gY] aU[YfYgci fW P` UghgUj YX] aU[YfYgci fW] bXYl P` UghgUj YX!
] aU[YfYgci fWdU[Yg
dcg]h]cb]b[PgUj Ydcg P` Ughl dcg P` Ughmdcg
X]fYW]cbg PhYl hX] f P`] bYX] f PaUh\X] f PdUfX] f PdU[YX] f PvcXmX] f PdU[YX] f YW] cb
PvcXmX] f YW] cb
fUbXca]nYf Pf UbXcagYXX PgYhf UbXcagYXX PbcfaU` XYj] UhY Pi b] ZcfaXYj] UhY
i h]]h]Yg PgrnbWYl
Yl hYbg]cbg P` UhY` i U P` UhY` i UZi bW] cb P] aaYX] UhY PcdYbci h Pkf] hY PW cgYci h
W\bf` Pgi ddfYggZcbhbchZci bXYffcf Pgi ddfYgg` cb[Yffcf Pgi ddfYggdf] a] h] j YYf!
fcf Pgi ddfYggaUh\UfYffcf Pgi ddfYgg] ZWgbUaYffcf Pgi ddfYggci hYfYffcf
PaUh\cdh] cb
k \UhYj Yf Pdf] a] h] j Y P] Zdf] a] h] j Y
][bcfYX P` cb[Pci hYf PaU[

H\Y fYgci fWg UbX dcg]h]cb]b[df]a]hj Yg UfY UW\i U`mi gYZ` Vi hWb VY XY bYX Ug a UWcg h\Uh
f]]U @ 5L]b YW\bcXYg]b h\Y]bdi h\hUghi]h\Y a UWc dUW_U[Y UbX VUW_YbX" H\Y h\YY!!`YhYf
X]fYW]cb df]a]hj Yg UfY [cbY UbX h\Y bi a Yf]Wj Uf]Ubhg UfY bck`YUX]b[" H\YfY]g bc bYYX Zcf
dU[Y UbX VcXmfY`UHXY X]fYW]cbg UbX h\YmXcb hk cf_ k Y`]b @ 5H9L Ubrk Urñ K Y cb`m\Uj Y hk c
X]fYW]cbg`YZh`

H\Y df]a]hj Y fY`UhYX Yl hYbg]cbg k YfY bch\Uh i gYZ` UbX fY`UV`Y gc h\Ym\Uj Y VYYb fYa cj YX"
H\YfY UfY gca Y bYk j Uf]Ubhg h\Uh k]` VY X]gW ggYX`UhYf" H\Y Pci hYf UbX P` cb[dfY l Yg UfY
[cbY Ug h\YmXcb ha U_Y a i W\ gYbgY bck UXUm UbX h\Ya VYW\ a]b[Xi a a]Yg cdYbYX h\Y k Umhc
gca Yh\]b[bYk ž U[U]b hc VY X]gW ggYX Y`gYk \YfY" =Xcb h\]b_ h\Uh f7 CB H9L Hē i gYfg k]` bch]W
]h" H\Y Pgi ddfYgg" " ZYUhi fYg UfY bck XYZUi`h`

H\Y Pg\] dci h df]a]hj Y XcYg bc g\]d ci h Vi h` gh YfUgYg h\Y W\bhYbh cZ h\Y Vcl ž]Z h\Uh \Ugb h
\UddYbYX U`fYUXm]b Ubch\Yf k Urñ

H\Y Yl hYbg]cb df]a]hj Yg fY`UhY hc h\Y VUW_YbX fk \Yb bch]a a YX]UhYl UbX Wb VY]a d`Ya YbhYX
Ug dUfhcZ U VUW_YbX XYg][b i g]b[[YbYf]Wk \Uh]hg" H\YfY]g cb`mcbY hmdY cZ k \Uh]h bck " →
ZUWk Y fY bck WcgYf hc cf][]bU` H9L k]h\ fYgdYW\hc h\Y Yl hYbg]cbg"

H\Y]a[`]VfUfm\Ug VYYb fYa cj YX Ug]hg fUhYf Vci bX hc h\Y VUW_YbX" H\Y g` i b] W\XY`]VfUfm
]g U`gc [cbY" H\YfY UfY gca Y \Y`dYfg]b h\Y ghf]b[`]VfUfm\UhWb VY i gYX]bghYUX UbX cbY Wb
k f]hY UXX]h]cbU` @ 5 W\XY]ZbYYXYX" H\YfY]g bc`cb[Yf U dXZ VUW_YbX`]VfUfm



≈b h\Y bcXYž hYI UbX ghUhi g `]VfUfmk Y bc `cb[Yf \Uj Y \Y`dYfg UbX j Uf]UV`Yg h\Uh fY`UhY hc h\Y VUW_YbX" H\Y @ 5A 9H5H9L Yb[]bY]g]b df]bWd`Y 8J =UbX D8: i bUk UfY" H\YfY UfY cb`m[YbYf]W k \Uhg]h bcXYg h\Uh Wb VY i gYX Zcf gca Y a UbU[Ya Ybh fY`UhYX HJg_g" : cf]bghUbW mci Wb i gY h\Ya hc]a d`Ya Ybhi gYf bcXYg"

H\Y a Uf[]b _Yfb bcXYg UfY [cbY UbX k Y bck i gY fY[i `Uf _Yfb bcXYg Zcf h\Ya " 5g U WbgYe i YbW h\YfY UfY Hk c YI hfU gi VmdYg]bX]WWh]b[h\Y]b`YVWYX `YZhcf f][\h_Yfb" H\Y [`md\ `Y`X gYfj YX bc fYU` di fdcgY gc h\YfY k Ug bc fYUgcb Zcf U gdYWU`_]bX cZbcXY"

H\Y ?DG9 `]VfUfm]g bc `cb[Yf Vi]`H]b" 6YWUi gY h\YfY]g bc VUW_YbXž ei]hY gca Y `Y fY`UhYX WU`VUW_g Wci `X [c Uk Um H\Y Zc`ck]b[`Y fY`UhYX WU`VUW_g fYa U]bYX fhj` bck Ł

Z] bXSkf] hYSZ] `Y Z] bXSXUhUSZ] `Y Z] bXSZcfaUhSZ] `Y
cdYbSXUhUSZ] `Y fYUXSXUhUSZ] `Y

5`gc WU`VUW_g fY`UhYX hc Yffcfcg ghUm

g\ckSYffcfS\cc_ g\ckS` i USYffcfS\cc_ž
g\ckSYffcfSaYggU[Y g\ckSkUf b] b[SaYggU[Y

H\Y frcVŁa UbU[Ya Ybh\cc_g UfY _Ydh

dfcWggS^cVbUaY
ghUfhSfi b ghcdSfi b kfUdi dSfi b
dfYSXi ad
ghUfhSZ] `Y ghcdSZ] `Y

6YWUi gY k Y i gY U a cfY [YbYf]Wk \Uhg]ha cXYž h\YfY]g U bYk WU`VUW_.

g\ckSk\Uhg] h

6Y]b[h\Y WcfY cZYI hYbg]V]`hmž h\Y hmdYgYHh]b[WU`VUW_g cZWci fgY ghUmYX" H\]g]g k \Uhk Y YbXYX i d k]h\.

Z] bXS` c[SZ] `Yž Z] bXSXUhUSZ] `Yž Z] bXSZcfaUhSZ] `Yž cdYbSXUhUSZ] `Yž fYUXSXUhUSZ] `Yž
dfcWggS^cVbUaYž ghUfhSfi bž ghcdSfi bž XYZ] bYSZcbhž dfYSci hdi hSZ] `hYfž
Vi]`XdU[YSZ] `hYfž \dUW_SZ] `hYfž j dUW_SZ] `hYfž \md\YbUhYž `] [Uhi f] b[ž _Yfb] b[ž
dfYS`] bYVfYU_SZ] `hYfž `] bYVfYU_SZ] `hYfž dcghS`] bYVfYU_SZ] `hYfž
UddYbXShcSj `] ghSZ] `hYfž a`] ghShcS\`] ghž dfYSXi adž ghUfhSZ] `Yž ghcdSZ] `Yž
\UbX`YSYffcfS\cc_ž g\ckSYffcfS\cc_ž g\ckS` i USYffcfS\cc_ž g\ckSYffcfSaYggU[Yž
g\ckSkUf b] b[SaYggU[Yž \dUW_Sei U`] hmž j dUW_Sei U`] hmž] bgYfhS` cWU` SdUf ž
Wcbhf] Vi hYSZ] `hYfž Vi]`XSdU[YS] bgYfhž kfUdi dSfi bž bYKS[fUZž aU_YSYI hYbg] V` Yž
g\ckSk\Uhg] hž hYfa] bU` S] bdi hž

5g]b @ 5H9L Zcbh`cUX]b[\UddYbg k]h\ h\Y Zc`ck]b[WU`VUW_" H\]g h]a Y]h fYU`mbYYXg hc VY gYhVYWUi gY h\YfY]g bc Vi]`H]b Zcbh`cUXYf"

XYZ] bYSZcbh

H\YfY UfY U`_]bXg cZgi VhY X] YfYbWg]b h\Y]a d`Ya YbhU]cbž Zcf]bghUbW k Y bc `cb[Yf]bhYf!
WdhŁ UbX / Ug h\YgY k YfY U`fYUXmfYd`UWYX`cb[U[c]b H9L Yb[]bYg VmWŁa a UbX `]bY cdh]cbg"
HU_]b[cZcdh]cbgž cb`mU ZYk UfY `YZh"



K Y hcc_ ci f h]a Y Zcf fYUWk]b[U ghUV`Y ghUHY]b @! 5H9L " 5a cb[h\Y fYUgcbg]g h\Y ZUW h\Uha cgh k Ug Yl dYf]a YbhYX k]h\]b 7CB H9LH" =h hcc_ a Ubma Ub!mYUfg hc XYWXY k \Uh hc _YYd UbX \ck hc Xc h\]b[g" CZ W6i fgY h\YfY UfY d`UWYg k \Yb h\]b[g WUb VY]a dfcj YX UbX]h a][\h \UddYb]b @! 5A 9H5H9L " 7cbhfUfmhc k \Uh]ggca Yh]a Yggi [[YghYXzh\Y @! 5H9L!7CB H9LHA ? =] W6a V]bUh]cb fUggi a]b[a UHXYX j Yfg]cbgk \Ug VYYb ei]hY ghUV`Y" =ha UXY bc gYbgY ch\Yfk]gY" A cgh 7CB H9LH Z bW]cbU`]hmX]Xb hVXUb[Y a i WU h\Y i gYf `Yj Y`" CZ W6i fgY h\YfY \Uj Y VYYb]ggi Ygz Ug]gbUh fU` k]h\ Yj Yfnt\]b[bYk UbX VYhUz Vi h k Y \Uj Y U ZUghi dXUHY WmWY"

H\Y gUa Y]g hfi Y Zcf @! 5A 9H5H9L UbX 7CB H9LH @A HL.]h WUb VY i gYX Zcf dfcXi W]cb Ug i gi U` UbX]b dfUW]WY 7CB H9LH i gYfg hYbX hc i gY h\Y VYhU fY`YUgYgz k \]W dfcj Yg h\]g" CZ W6i fgYz]Z mci i gY `ck `Yj Y` ZYUhi fYg h\Uh UfY Yl dYf]a YbhU` mci fY cb mci f ck b" 5`gcZ Ug k]h\ @! 5H9L]h a][\h hU_Y a UbmYUfg VYZcfY U`cb[hYfa ghUV`Y]g XY bYX" H\Y [ccX bYk g]g h\Uhzh\Y gci fWY W6XY VY]b[dUfhcZ h\Y 7CB H9LH X]ghf]Vi h]cbzh\YfY]g U`k Umg U dfcdYf`mk cf_]b[za cfY cf `Ygg `cb[hYfa ghUV`YzgbUdg\ch"

H\Y Yffcf fYdcfh]b[gi VgmghYa \Ug VYYb fYXcbY U`]hY Vi h]g gh]` Z bXUa YbhU`mh\Y gUa Y" K Y Xcb hfYU`mUggi a Y]bhYfUW]j Y i gU[Y Vi h]Zgca YcbY i gYg]hzh]h a][\h VY bch]WYX h\Uh]h]g bch dcgg]V`Y hc VUW_hfUW_ cf]b`YW]gca Yh\]b[" CZ W6i fgY]h]g bc V][XYU` hc]a d`Ya Ybh U` h\Uh]b @! 5]ZbYXYX" =hfYa cj Yg U gmghYa XYdYbXYbWmUbX a U_Yg Zcf U V]h WYUbYf W6XY"

H\YfY UfY bYk df]a]hj Yg hcc Ug k Y` Ug gca Y Yl hYbg]cbg hc Yl]gh]b[df]a]hj Y Z bW]cbU`]hm H\YgY UfY XYgW]VYX]b Zc`ck]b[WUdhYfg Vi h h\YfY a][\h VY \]XXYb hfYUgi fYg]b h\Y V]bUfm =Z mci `cWUhy h\Ya zhXcb hUi hca Uh]WU`mUggi a Y h\Ya hc ghUnz gca Y a][\h VY dUfhcZ Yl dYf]a Ybhg"



H\Y Zc`ck]b[df]a]hj Yg UfY Uj U]`UV`Y]b @ 5H9L Vi hbch]b @ 5A 9H5H9L "Gca Y cZH\YgY UfY Ya !
i `UhYX]b 7CB H9L H"

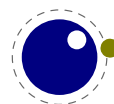
VcXmX] f
VcXmX] fYWh] cb
Vcl X] f
WcgYci h
WcdmZcbh
XfUZhacXY
Xj] Yl hYbg] cb
Xj] ZYXXVUW_
Xj] j Uf] UV` Y
YHYLJYfg] cb
YHYL[` i Yg\ f] b_cfXYf
YHYL[` i YghfYhWcfXYf
YHYLa] bcfj Yfg] cb
YHYLfYj] g] cb
YHYLj Yfg] cb
Yl dUbX[` md\g] bZcbh
] Zdf] a] h] j Y
] [bcfY`] [Uhi fYg] bZcbh
] aaYX] UhY
` UghgUj YXVcl fYgci fVW] bXYl
` UghgUj YX] aU[YfYgci fVW] bXYl
` UghgUj YX] aU[YfYgci fVWdU[Yg
` Ughl dcg
` Ughmdcg
` UhY` i U
` UhY` i UZi bWh] cb
` YZh[\cgh
` YhhYfgdUWVZcbh
`] bYX] f
aUh\X] f
aUh\cdh] cb
bc` cWU` X] fg
bc` cWU` k\Uhg] hg
bcfaU` XYj] UhY
cdYbci h

ci hdi hacXY
dU[YVchhcacZZgYh
dU[YX] f
dU[YX] fYWh] cb
dU[Y\Y] [\h
dU[Y` YZhcZZgYh
dU[Yf] [\hcZZgYh
dU[YhcdcZZgYh
dU[Yk] Xh\
dUfX] f
dXZYl hYbg] cb
dXZZYXXVUW_
dXZj Uf] UV` Y
df] a] h] j Y
fUbXcagYYX
f] [\h[\cgh
gUj YVcl fYgci fVW
gUj Y] aU[YfYgci fVW
gUj Ydcg
gYhfUbXcagYYX
gdYWU` U`
gi ddfYggZcbhbchZci bXYffcf
gi ddfYgg] ZWgbUaYYffcf
gi ddfYgg` cb[Yffcf
gi ddfYggaUh\dUfYffcf
gi ddfYggci hYfYffcf
gi ddfYggdf] a] h] j YYffcf
gmbWWhYl
hU[WcXY
hYl hX] f
i b] ZcfaXYj] UhY
i gYVcl fYgci fVW
i gY] aU[YfYgci fVW
kf] hY



H\Y Zc`ck]b[df]a]hj Yg UfY Uj U]UV`Y]b @ 5A 9H5H9L cb`m5hgca Y dc]bh]b h]a Y gca Y a][\hVY
UXXYX hc @ 5H9L"

I I g_YkYX	Zi hi fYYI dUbX] gUd
I I g_YkYXk] h\XY`] ag	[`md\XUhUZ] Y` X
I UVcj Y	[`md\gWf] dhZ] Y` X
I UVcj Yk] h\XY`] ag	[`md\ghUhYZ] Y` X
I Uhcd	] ZUf [i aYbhg
I Uhcdk] h\XY`] ag	] ZVcc` YUb
I aUh\W Ugg	] ZW_X] a
I aUh\gdUWVYZcfYgWf] dh	] ZW_bi a
I aUh\gdUW] b[acXY	] ZWdX] a
I bcgi VdfYgWf] dh	] ZWdbi a
I bcgi dYf dfYgWf] dh	] ZWghc_
I cj Yf	] ZX] aj U`
I cj Yfk] h\XY`] ag	] ZYadhm
I ghm Y	] ZZf cnYb
I gi VdfYgWf] dh	] Z\Ughc_
I gi dYf dfYgWf] dh	] Z\Ughc_g
UX^i ghgdUW] b[g\f] b_	] Z\Ugl hc_g
UX^i ghgdUW] b[ghYd	] ZaUh\dUf UaYhYf
UX^i ghgdUW] b[ghfYhW	] ZaUh\ghm Y
UZhYf Ugg] [bYX	] Zbi aj U`
UZhYf [fci dYX	] Zdf chYWhYX
UhYbXcZ[fci d	] Zhc_
UhYbXcZ[fci dYX	] Zi gYf WdX
VY[] b` cWU` Wcbhfc`	] [ bcf YUf [i aYbhg
Vcl Uhhf	] [ bcf YdUf g
Vcl cf] YbhUh] cb	] bhYf bU` WcXYgacXY
Vcl hchU`	` UghUf [i aYbhg
Vcl l acj Y	` UghbcXYgi VhmdY
Vcl l cZZgYh	` YhXUhUWcXY
Vcl macj Y	` YhZf cnYb
Vcl mcZZgYh	` Yhdf chYWhYX
Yj Yf nthUV	` i Uj U` i YZi bWh] cb
Yl dUbX	aUh\c` XacXY
Yl dUbXUZhYf dUf g	cfX`] a] hg
Yl dUbXUZhYf gdUWg	cfY` gY
Yl dUbXWghc_Yb	g\ckbcXYXhU] ` g
Yl dUbXhc_Yb	gi daUf_acXY
Zf cnYb	h\Yk] h\ci hi b] h
Zi hi fYXYZ	hc_Yb] nYX
Zi hi fYYI dUbX	i b` YhZf cnYb
Zi hi fYYI dUbX] g	i b` Yhdf chYWhYX





&& 8] YfYbWg k]h\ @l 5H9L

' H\Y cf][]bU` Yb[]bYg

' "% H\Y a Yf[YX Yb[]bYg

' "%%" H\Y fUh]cbU`Y

H\Y fghj Yfg]cb cZ@ 5H9L ža UXY Vm< Ufha i hUZhYf k Y X]gW ggYX h\Y dcfg[V]`]hmcZ Ub Yl hYbg]cb
`Ub[i U[Yžcb`m\UX UZYk Yl hfUdf]a]hj Yg UbX]hk Ug`Uf[Y`mh\Y gUa Y Ug D8: H9L " =hk Ug dfYgYbhYX
hc h\Y di V`]W]b &\$%) " 5g dUfh cZ h\Y Cf]YbHU` H9L dfc`YVWž HUWč a Yf[YX gi VghUbh]U` dUfhg cZ
5@9D<]bhc h\Y WčXY UbX gca Y a cfY df]a]hj Yg k YfY UXXYX" H\Yb k Y ghUfhYX a cfY ž bXUa YbHU`
Yl dYf]a Ybhg" 5ZhYf a UbmmYUfgž k \Yb h\Y Yb[]bY \UX VYVča Y a cfY ghUV`Yž h\Y XYW]g]cb k Ug
a UXY hc WYUb i d h\Y fUh\Yf \mVf]X bUhi fY cZ h\Y dfc[fUa " H\]g a YUbg h\Uh gca Y df]a]hj Yg
k YfY dfca chYX hc WčfY df]a]hj Ygž cZhYb k]h\ U X] YfYbh bUa Yž UbX h\Uh ch\Yfg k YfY fYa cj YX"
H\]g U`gc a UXY]hdcgg[V`Y hc ghUfhWYUb]b[i d h\Y WčXY VUgY" =b V\UdhYf) k Y X]gW gg gca Y bYk
df]a]hj Ygž \YfY k Y k]` Wčj Yf a cghcZ h\Y UXUdhYX cbYg"

8i f]b[a cfY h\Ub U XYWXY ghYdk]gY bYk ž bW]cbU`]hmk Ug UXXYX UbX UZhYf %\$ mYUfg h\Y a cfY
cZ `Ygg ghUV`Y j Yfg]cb %"\$ k Ug dfYgYbhYX" 6i h k Y Wčbh]bi YX UbX UZhYf gca Y %) mYUfg h\Y
@ 5A 9H5H9L Zc`ck i d YbhYfYX]hg fgh hYgh]b[ghU[Y" 6i h VYZcfY XYHU]`g UVci h h\Y Yb[]bY UfY
X]gW ggYX]b gi W\Wgg] Y V\UdhYfgž k Y fghgi a a Uf]nY k \YfY k Y ghUfhYX Zfca " ?YYd]b a]bX h\Uh
]b @ 5A 9H5H9L k Y \Uj Y U V]h`Ygg h\Ub]b @ 5H9L ž gc h\]g gYVW]cb X] Yfg Zfca h\Y cbY]b h\Y
@ 5H9L a Ubi U"

6Yg]XYg h\Y Yl dYVWYX V\Ub[Yg W\i gYX VmbYk ž bW]cbU`]h\ h\YfY UfY U bi a VYf cZ bchgc!Yl!
dYVWYX V\Ub[Yg" H\YgY UfY gca Yh]a Yg U g]XY!Y YW\cZU bYk f\Wčb]W]b[ŁZYUhi fYžcfž a cfY cZhYb
h\Ub bchž U V\Ub[Y bYVWggUfmhc WYUb i d h\Y]bhYfbU`]bhYfZUWg" H\YgY k]` U`gc VY a Ybh]cbYX"

' "%& 7 \Ub[Yg Zfca H9L ' "%(%) - &*

CZWči fgY]hU` ghUfhg k]h\ hfUX]h]cbU` H9L " 9j Yb]Zk Y ghUfhYX k]h\ D8: H9L ža cghgh]` Wča Yg Zfca
cf][]bU` ?bi h\]Ub H9L " 6i h k Y X]j YfhU V]h"

H\Y W ffYbhWčXY VUgY]g k f]hYb]b 7ž bchD5G75@" H\Y cf][]bU` 7k 96 XcW a YbhU]cb]g _Ydh
k \Yb dcfg[V`Y UbX bchk fUddYX]b HU[[YX Wča a Ybhg" 5g U WčbgYei YbW\]bghYUX cZcbY `Uf[Y
`Y d`i g V\Ub[Y `Ygž k Y bck \Uj Y a i `h]d`Y `Ygcf[Ub]nYX]b W\hY[cf]Yg`]_Y hYl ž` i UZž` Ub!
[i U[Ygž Zcbhgž`] VfUf] Ygž YhW H\YfY UfY gca Y Ufh]ZUWg cZ h\Y Wčb] Yfg]cb hc 7ž Vi h h\YgY
[chfUbX [Yhč fYa cj YX ghYdk]gY" H\Y XcW a YbhU]cbž k \]V\ UW\i U`mWča Yg Zfca h\Y a]l cZ
Yb[]bYg f]]U gc W\`YX V\Ub[Y `Ygž]g _Ydh Ug a i V\ Ug dcfg[V`Y" CZWči fgY k Y k Ubh hc ghUm
Ug WcgY Ug dcfg[V`Y hc h\Y cf][]bU` gc h\Uh h\Y XcW a YbhU]cb cZ h\Y ž bXUa YbHU`g VY\]bX
H9L Vm8cb ?bi h\ gh]` Udd`Yg" <ck Yj Yfž VYW\i gY k Y i gY 7ž gca Y XcW a YbhU]cb]g U V]hc "
5`gcža cgh[`cVU` j Uf]UV`Yg UfY bck Wč`YVWYX]b ghfi W\i fYgž Vi h h\Y cf][]bU` bUa Yg k YfY _Ydh"
H\YfY UfY `chg cZgc W\`YX a UWcg hcc"

GYY V\UdhYf + Zcf a Ubmga U` V\Ub[Yg fY`UhYX hc dUfU[fUd\ Vi]`X]b[ž`Ub[i U[Y \UbX`]b[UbX
\md\YbU]cb" H\Y a cgh]a dcfHUbh V\Ub[Y]g h\Uh UXX]b[U VfUW\ [fci d]b h\Y a]XX`Y cZ U
k cfX fl_Y]b cZoqZ] W\č XcYg bchdfY] Ybh`][Uhi fY W\YU]cb" 5`gcž h\Y \md\YbU]cbž`][Uhi fY



Vi]`X]b[UbX _Yfb]b[\Ug VYyb gd`]hgc h\Uhk Y WUb \cc_]b U`hYfbUhj] Y cf YI hfU WcXY k \YfY] Yf k Y `]_Y" H\YfY UfY j Uf]ci g cdh]cbg hc Wc b h f c` X]gWfYh]cbUfm]b`YVh]cb UbX fY`UhYX dYbU`h]Yg UfY bck]bhY[fUhYX]b h\YgY bcXYg" @Ub[i U[Y]bZcfa Uh]cb]g bck Vci bX hc [`md\g" H\Y bi a VYf cZ`Ub[i U[Yg]b @ 5A 9H5H9L]g ga U`Yf h\Ub]b @ 5H9L "

H\YfY]g bc dcc` `Yž U` ghf]b[g UfY Ya VYXXYX Xi f]b[Wc a d]`Uh]cb" H\]g U`gc fYa cj YX gca Y a Ya cfmWc bghfU]b h g" K Y _Ydhhc_Yb UbX bcXY a Ya cfma UbU[Ya YbhVYWli gY]h]g Wc bj Yb]Ybh UbX Y]VYbh Vi h dUfhg k YfY fY]a d`Ya YbhYX]b cfXYf hc fYa cj Y gca Y Wc bghfU]b h g" Hc_Yb a Ya cfma UbU[Ya Ybh]g `Uf[Y`mh\Y gUa Y"

H\Y gdYVWY Yf d` i g % Z] ` ` ` ` XcYg bch[YbYfUhY Ub Yffc" H\Y YI hfU `]g g]a d`mhmdYgYh" H\Y i ddYf `]a]h hc PYbX`] bYWUf UbX PbYk`] bYWUf]g %&+"

6YWli gY h\Y VUW_YbX]g bchVi]`H]bž h\Y a U[b] WUh]cb fPaU[Ł df]a]h] Y]g bchXc]b[` bch\]b[" 5 g\] dci h ` ghX]gWfXg h\Y Wc b h b h c Z h \Y []j Yb Vcl " H\Y k f]hY fY`UhYX df]a]h] Yg \Uj Y hc VY]a d`Ya YbhYX]b h\Y i gYX a UWc dUW_U[Y i g]b[@ 5" BcbY cZ h\Y D8: H9L XYf]j YX df]a]h] Yg]g dfYgYbh"

H\YfY]g a cfY Wc b h f c` cj Yf gca Y fZcfa Yf`m\UfX!WcXYXŁ a Uh\ dfcdYfh]Yg" ð ZUWž h\YfY]g U k \c`Y YI hfU V]hcZa Uh\ fY`UhYX WcXY VYWli gY k Y bYXX hc XYU` k]h\ CD9B HMD9 Zcbhg"

H\Y Pci hYf UbX P`cb[dfY I YX UfY g]`Ybh`m][bcfYX" ð]g dYfa]hYX hc i gY PdUf]b a Uh\ "

6YWli gY h\YfY]g bc Zcbh`cUXYfž U @ 5 j Uf]Ubh]g ZfY Y hc Y]h\Yf gi ddcfhcf bchh\Y CA 9; 5 cZa `Y Zcfa Uh" 5g h\YfY UfY \UfX`mUbmgi W\ Zcbhg]hdfcVUV`ma U_Yg bc gYbgY"

H\Y `UW_ cZU VUW_YbX a YUbg h\Uh gca Y df]a]h] Yg fY`UhYX hc]hUfY bch]a d`Ya YbhYX" H\]g]g bc V][XYU` VYWli gY]h]g dcgg]V`Y hc i gY h\Y gWUbbYf `]VfUfmhc]a d`Ya Ybh h\Ya Ug bYXXYXž k \]W\ XYdYbXg cb h\Y a UWc dUW_U[Y UbX VUW_YbX"

K \Yb XYHU]YX `c[[]b[]g YbUV`YX a cfY XYHU]`]g ci hdi h k]h\ fYgdYWh hc k \Uh bcXYg UfY]b! j c`j YX" H\]g]g U g]XY Y YWhcZ h\Y Wc fY bcXYg \Uj]b[a cfY XYHU]YX gi VhmdY]bZcfa Uh]cb" H\Y VYbY h cZ a cfY XYHU]` k]bg Zfca Ubmk]g\ hc VY VmhY Wc a dUh]V`Y]b h\Y `c[[]b[" CbY WUb U`k Umg k f]hY UXX]h]cbU` `c[[]b[]b @ 5"

' "%" 7 \ Ub[Yg Zfca !H9L &"&

6Y]b[h\Y XY!ZUWc ghUbXUfX YI hYbg]cb cZ Wci fgY k Y dfcj]XY h\Y !H9L ZYUhi fYgž Vi h k]h\ U ZYk ga U` UXUd hUh]cbg"

H\Y !H9L Ži bW]cbU`]hm]g U`k Umg dfYgYbh UbX YbUV`YX gc h\Y dfYdYbXYX UghYf]g_ cf !YhYI gk]hW\ Zcf ð ð H9L]g bchbYXXYX"

H\Y H9LL 9H YI hYbg]cb]g bch dfYgYbhž gc h\Y df]a]h] Yg PHYLLYHghUhYž PVY[] bFž PVY[] b@ž PYbXF UbX PYbX@UfY a]gg]b[" ðghYUX k Y i gYX h\Y CA 9; 5#5@9D< UddfcUW\ hc X]fYW]cbU`]hm Ug ghUfh]b[dc]bž U`VY]h]h\Ug VYyb W\Ub[YX ei]hY U V]hž gc h\Uh k Y fY dfcVUV`mbch h\Uh Žf Zfca H9LL 9H"

Gca Y cZ h\Y hfUW]b[]bZcfa Uh]cb h\Uh]g ci hdi hVm !H9L g PhfUW] b[Ug] [bg UbX PhfUW] b[fY! ghcfYg]g bchh\YfY" 5`gc _YYd]b a]bX h\Uh hfUW]b[XcYgb h]bj c`j Y k \Uh @ 5 XcYg"

FY[]ghYf a UbU[Ya Ybh]b @ 5A 9H5H9L i gYg h\Y CA 9; 5#5@9D< a cXYžgc h\Y a UI]a i a j U`i Y]g *))) UbX h\Y]a d`Ya YbhUh]cb i gYg U UhUffUm]bghYUX cZ h\Y a]I YX Uh/ gdUfgY a cXY` Zfca !H9L "

6YWli gY k Y Xcb hi gY W\Ub[Y `Yg cb hcd cZcf][]bU` H9L ž h\Y]bhY[fUh]cb cZ !H9L Ži bW]cbU`]hm]g V]ha cfY bUhi fUž WcXY k]gY"



' "%(7\Ub[Yg Zfca D8: H9L "%(\$

6YWU gY k Y k Ubhlc dfcXi VW D8: h\Y a cghbUhi fU` ghUfh]b[dc]bhk Ug h\Y dcdi `Uf D8: H9L dfc!
[fUa " K Y]b\Yf]h h\Y ghUV`Y ZYUhi fYgž XfcddYX a cgh cZ h\Y Yl dYf]a YbhU` WcXY UbX dfca chYX
gca Y ž bW]cbU`]hmhc WcfY @ 5H9L ž bW]cbU`]hm k \]VX]b hi fb hf][[YfYX fYbUa]b[df]a]hj Yg"
< ck Yj Yfž Ug h\Y VUW_YbX k Ug XfcddYXž bch h\Uha i VX Zfca D8: H9L]g dfYgYbh Ubma cfY" 6Ug!
VW`mU` k Y bck]b\Yf]h Zfca D8: H9L]g Yl dUbg]cb UbX dfchfi g]cb Vi hYj Yb h\Uh\Ug VYYb UXUdhYX"
Gc Xcb hYl dYW @ 5A 9H5H9L hc VY Wca dU]V`Y"

H\Y Yl dYf]a YbhU` df]a]hj Yg P] ZUVgbi a UbX P] ZUVgX] a \Uj Y VYYb dfca chYX hc WcfY df]a]!
hj Yg"

H\Y df]a]hj Yg P] Z] bWgbUaYž PYl dUbXYX UbX Pei] hj acXY \Uj Y VYWca Y WcfY df]a]hj Yg"

5g h\Y \n fYl dUbg]cb ž UbX dfchfi g]cb a YWUbg]ga UfY dUfh cZ h\Y WcfY h\Y fY`UhYX df]a !
]hj Yg P` dWcXYž Pf dWcXYž PYZWcXYž P` YZhaUf[] b_Yfbž Pf][\haUf[] b_Yfb UfY dfca chYX hc
WcfY df]a]hj Yg" H\Y k c Wca a UbXg Pdfchfi XYWUfg UbX PUX`i ghgdUW] b[Wcbhf` h\YgY
dfcWggYg"

→ @ 5A 9H5H9L hfYY Yl hfU df]a]hj Yg WUb VY i gYX hc c] Yf`cUX h\Y Zcbh gdYW] WgYh]b[g.
PUX`i ghgdUW] b[ghYd fa Ul . %\$\$ž PUX`i ghgdUW] b[ghfYhVX fa Ul . %\$\$ž UbX PUX`i ghgdUW
] b[g\f] b_ fa Ul .) \$ž"

H\Y \n cdh]a]nU]cb WcXY \Ug VYYb dUfh]U`mfYXcbY gc h\Uhk Y bc `cb[Yf bYXX hc WYUhy Yl hfU
Zcbh]bghUbWg" H\Y ZfcbH UbX VUW_YbX \Uj Y VYYb XYWci d`YX UbX h\Y [`md\ UbX _Yfb bcXYg
WUffmhY i gYX j U`i Yg" → @ 5H9L h\Uha UXY Ua cfY Y]WYbh[YbYfU]cb cZ D8: WcXY dcbg]V`Y"
→ hU`gc fYgi `hYX]b a i VX WYUbYf WcXY" H\Y VUW_YbX WcXY]g[cbYžVi hcZWci fgY h\Y]bZcfa Uh]cb
]g gh]` WUff]YX Ufci bX"

K \Yb PUX`i ghgdUW] b[\Ug j U`i Y &ž \n cdh]a]nU]cb k]` VY Udd`]YX hc [`md\g UbX _Yfbg" K \Yb
h\Y j U`i Y]g' ž cb`m[`md\g k]` VY hfYUHYX" 5 j U`i Y ga U`Yf h\Ub & X]gUVYg h\]g ZYUhi fY" K]h
j U`i Y cZ %ž Zcbh Yl dUbg]cb]g Udd`]YX UZhf H9L g bcfa U` dUfU[fUd\ VfYU_]b[fci h]bYg \Uj Y
Vfc_Yb h\Y dUfU[fUd\]bhc `]bYg" → h\]g WUgYž `]bY VfYU_g UfY]XYbh]WU` hc ghUbXUfX H9L VY\Uj !
]cf fUgk]h D8: H9L ž 6i h"" h\]g]g U`YŽh c] Yf Zfca h\Y YUf`mXUmž cZ D8: H9L k \Yb h\]g ZYUhi fY
k Ug dUfhcZ U fYgYUfW hcd]W 5hgca Y dc]bh`Yj Y` %a] [\hVY XfcddYX Zfca @ 5A 9H5H9L "

K \Yb Pdfchfi XYWUfg \Ug U j U`i Y `Uf[Yf h\Ub nYfc VUfUWYfg Uh h\Y YX[Y cZ U `]bY WUb
VY a UXY hc \Ub[ci h" 5 j U`i Y cZ & k]` hU_Y h\Y dfchfi g]cb]bhc UWWci bhk \Yb VfYU_]b[U
dUfU[fUd\]bhc `]bYg" 5 j U`i Y cZ' k]` hfmh cXYU` k]h f][\h hci! YŽh fYbXYf]b[/ h\]g]g U gh]`
Yl dYf]a YbhU` ZYUhi fY"

H\Y d]l Y` a i `h]d`Yf X]a Ybg]cb Pdl X]a Yb \Ug VY]b\Yf]hYX Ug WcfY df]a]hj Y"

H\Y df]a]hj Y Phf UW] b[Zcbhg]g bck U WcfY df]a]hj Y Vi hXcYgb hfY`UhY hc h\Y VUW_YbX"

' "%) 7\Ub[Yg Zfca 5@9D< F 7(

→ @ 5H9L k Y hcc_ h\Y ' & V]h Ug dYWg UbX a i VX cZ h\Y X]fYW]cbU` a YWUbg]ga g UbX a Yf[YX
]h]bhc h\Y D8: H9L WcXY VUgY Ug ghUfh]b[dc]bh Zcf ž fh\Yf XYj Y`cda Ybh" H\Yb k Y g]a d`] YX
X]fYW]cbU`]hž I YX]h UbX cdYbYX]hi d" → @ 5A 9H5H9L bch h\Uha i VX cZ h\Y `UhYf]g `YŽh" K Y
cb`m\Uj Y k c \cf]ncbHU` X]fYW]cbg" → ghYUX cZ j Yfh]WU` X]fYW]cbg k Y]bhf cXi WU Ub cf]YbhU]cb
a cXY` Vci bX hc Vcl Yg"

H\Y U`fYUXmfYXi WX!hci! ži f gYhcZX]fYW]cbg bck cb`m\Ug k c a Ya VYfg. `YŽh hci! f][\h UbX f][\h
hci! YŽh" H\YmXcb hXc a i VX Ug]h]g h\Y VUW_YbX h\Uh\Ug hc XYU` k]h h\Ya " K \Yb dUfU[fUd\g



UFY Wcbghfi WYX U WXUb[Y]b \cf]ncbHU` X]fYVW]cb]g]ffY`Yj Ubh Zcf WU`W`Uh]b[H\Y X]a Ybg]cbg"
Gcz VUg]WU`ma cgh hUh k Y Xc]g fY[]ghYf]b[ghUHf UbX dUgg]b[hUh cb h]` h\Y VUW_YbX WUb Xc
gca Yh]b[k]h]h"

< YfY]g U gi a a UfmcZ]b\Yf]hYX Z bW]cbU`]hm

H\Y RR bchUh]cb \ Ug VYYb YI hYbXYX. UZhYf RRRR Zci f \YI UXYW]a U` WX UfUWYfg UfY YI dYWYX UbX
UZhYf RRRRRR g]I \YI UXYW]a U` WX UfUWYfg \Uj Y hc VY []j Yb" H\Y cf][]bU` Hg_L]bhYfdYhUh]cb]g
gh]` j U`X Zcf h\Y RR WUgY Vi h h\Y Zci f UbX g]I j Uf]Ubhg Xc bc VUW_hfUW_]b[ž]"Y" k \Yb h\YmUfY
bchZc`ck YX Vmh\Y f][\hbi a VYf cZ\YI UXYW]a U` X][]hg h\Ym]ggi Y Ub Yfcaf a YggU[Y" 6YWUj gY
RRR]g U bcfa U` Hg_L WUgYž k Y Xcb hgi ddcfh h\Y cXX bi a VYf cZ RRRRR Y]h\Yf"

; `i Yg]a a YX]UhY`mUZhYf X]fYVW]cb WXUb[Y Wca a UbXg UfY bch`Y[U` VfYU_dc]bhg" H\YfY]g U V]h
a cfY gUb]hmhYgh]b[Zcf h\Y X]fYVW]cb ghUHf"

H\Y d`UW]a Ybhcz a Uh Zcfa i `U bi a VYfg]g X]fYVW]cb Uk UfY UbX UXUdhg UWUcfX]b[`m 6cl Yg
WUffmX]fYVW]cbU`]bZcfa Uh]cb Vi hfi `Yg Xcb h"

H\YfY UfY bc X]fYVW]cb fY`UhYX df]a]hj Yg Zcf dU[Y UbX VcXmX]fYVW]cbg" H\Y dUfU[fUd\ž hYI h
UbX a Uh X]fYVW]cbg UfY gdYW] YX i g]b[df]a]hj Yg hUhU_Y U bi a VYf"

' "%* 7\Ub[Yg Zfca ghUbXUfX k 96&7

H\Y @ 5A 9H5Hg_L WcXYVUgY]g bchXYdYbXYbhcb h\Y k 96&7 ZfUa Yk cf_" H\Y]bhYfUW]cb k]h h\Y
`Y gmghYa UbX H8G]g i d hc @ 5" H\YfY gh]` a][\hVY hfUW]g Vi hYj Ybhi U`mh\Y WcXY VUgY g`ci `X
VY`YUb UbX a YUb" H\Y A 9H5DCGH`]VfUfm]g WcXYX]b 7k 96 UbX]b cfXYf hc VY]bXYdYbXYbhZfca
fY`UhYX hcc`gž Wcbj Yfg]cb hc 7]g XcbY k]h U @ 5 gW]dhfUb Vraž gi fdf]gYž @ 5A 9H5Hg_L "

' "& =a d`Ya YbhUh]cb bchYg

' "&"% A Ya cfmU`cWUh]cb

H\Y g]b[`Y]bhYfbU` a Ya cfm\YUd hUh hfUX]h]cbU` Hg_L i gYX Zcf hc_Ybg UbX bcXYg]g gd`]h]bhc Hk c
gYdUfUHf UffUmg" 9UW cZH\YgY k]` [fck XmbUa]WU`mk \Yb bYXYX" bhYfbU`mU hc_Yb cf bcXY]g
Ub]bXYI]bhc h\YgY UffUmg" H\]g dYfa]hg Zcf Ub Y]W]Ybh]a d`Ya YbhUh]cb UbX]g U`gc fYgdcbg]V`Y
Zcf h\Y dYfZcfa UbW cZH\Y WcfY" H\Y cf][]bU` XcW a YbhUh]cb]b Hg_L H\Y Dfc[fUa a cghmUdd`]Yg"

' "&"& GdUfgY UffUmg

H\Y PaUh\WcXYž PXy` WcXYž PWUhWcXYž PgZWcXYž P` WcXY UbX Pi WcXY fUbX h\Y bYk P\^WcXYž
hUV`Yg UfY bck gdUfgY UffUmg hUh UfY]a d`Ya YbhYX]b 7" H\YmUfY bc `cb[Yf dUfh cZ h\Y Hg_L
Yei]j U`YbW hUV`Y UbX VYWUj gY YUW \UX "%a]`]cb Ybhf]Yg k]h U ZYk a Ya cfmk cfXg YUWž
h]g a U_Yg U a U`cf X] YfYbW]b a Ya cfmi gU[Y" DYfZcfa UbW]g bchfYU`m\i fhVm h]g"

H\Y PWUhWcXYž PgZWcXYž P` WcXYž Pi WcXY UbX P\^WcXY Ugg][ba Ybhg Xcb hg\ck i d k \Yb i g]b[
h\Y !Hg_L hfUW]b[fci h]bYg PhfUW] b[Ugg] [bg UbX PhfUW] b[fYghcfYg Vi h k Y Xcb hgY hUh Ug U
fYU` `ja]hUh]cb" hU`gc gUj Yg U `chcZW i hYf"

5 g]XY!Y YW hcz h\Y W ffYbh]a d`Ya YbhUh]cb]g hUh P[`cVU`]g bck a cfY YI dYbg]j Y]b hYfa g cZ
dfcWgg]b[hUb bcb![`cVU` Ugg][ba Ybhg Vi hbcha Ubmi gYfg k]` bch]W hUh"



H\Y [`md\]Xg k]h\]b U ZcbhUfY U`gc a UbU[YX Vma YUbg cZU gdUfgY UffUmUg [`md\]Xg WUb [c i d hc]bXYI 2²¹ - 1 Vi h h\YgY UfY bYj Yf UWWggYX X]fYVhmgc U[U]b i gYfg k]` bchbch]W h\]g"

' "&" G]a d`Y g]b[`Y!W\UfUW\Yf WgbUa Yg

G]b[`Y!W\UfUW\Yf W\ca a UbXg UfY bc `cb[Yf hfYUHYX gdYV]U`m]b h\Y]bhYfbU`gž h\YmUfY ghcfYX]b h\Y \Ug\ ` gh`]_Y h\Y a i `h]`YhYf WgbUa Yg"

H\Y W\XY h\Uh X]gd`Um\ W\cbhfc` gYei YbW\g YI d`]W\h mW\YW_g]Z h\Y `Yb[h\]g cbY k \Yb]h\Ug hc XYV]XY k \Yh\Yf cf bchhc UXX U hfU]`]b[gdUW`"

5Vh]j Y W\UfUW\Yfg UfY]bhYfbU`m]a d`Ya YbhYX Ug U gdYV]U` hmdY cZa i `h]!`YhYf W\cbhfc` gYei YbW\g h\Uhi gYg U dfY I h\Uh]g ch\Yfk]gY]a d\gg]V`Y hc cVhU]b"

' "&"(6]bUfm `Y fYUX]b[

5` cZh\Y]bhYfbU` W\XY]g W\Ub[YX]b gi W\ U k Umh\Uh]ZcbY cZh\Y fYUXSI I I SZ] `Y W\`VUW_g]g bch gYhž h\Yb h\Y `Y]g fYUX VmU 7 ž bW]cb i g]b[VUg]W\`mh\Y gUa Y W\bj Ybh]cb Ug h\Y W\`VUW_. U g]b[`Y fYUX]bhc U Vi Yf V][Ybci [\ hc \c`X h\Y Ybh]fY `Y W\bhYbhg" K \]Y h\]gi gYga cfY a Ya cfm h\Ub h\Y dfYj]ci g W\XY fh\Uh a cghmi gYX [YhWW\`gtž]h WUb VY ei]hY U V]h ZUghYf fKYdYbX]b[cb mci f =C gi VgmghYa E" Gc ZUf k Y bYj Yf \UX]ggi Yg k]h\ h\]g UddfcUW`"

' "&") HUVg UbX gdUW\g

K Y W\bcZfa hc h\Y k Umch\Yf HgL Yb[]bYg \UbX`Y hfU]`]b[HUVg UbX gdUW\g" : cf XYWUXYg hfU]`]b[HUVg UbX gdUW\g fVYZcfY U bYk `]bYk YfY fYa cj YX Zfa h\Y]bdi hVi h\]g VY\Uj]ci f k Ug W\Ub[YX]b GYdhYa VYf &\$%+ hc cb`m\UbX`Y gdUW\g" K Y UfY Uk UfY h\Uh h\]g WUb]bhfcXi W\ W\ca dUh]V]`]m]ggi Yg]b YI]gh]b[k cf_ ck g Vi h VYW\i gY k Y Xcb h k Ubh hcc a UbmX] YfYbW\g k]h\ i dghfYUa HgL @= 9 k Y ` ghZc`ck i d cb h\UhdUh\X fk \]W\]g U ž bW]cbU` cbY UbX bchfYU`mU I E" =h]gi d hc a UWfc dUW_U[Yg a U]bH]bYfg hc XYU` k]h\ d\gg]V`Y W\ca dUh]V]`]m]ggi Yg UbX]b @ 5A 9H5Hg h\Ym WUb Xc gc j]U h\Y W\`VUW_g h\UhXYU` k]h\ fYUX]b[Zfa `Yg"

H\Y dfYj]ci g VY\Uj]ci f k Ug U _bck b g]XY Y YW\UbX fUg h\Uh_]bX cZ]bdi hbcfa U`mW\ca Yg Zfa [YbYfUHYX gci fW\gk]hk Ug bcfa U`mXYU`hk]h\ VmUXX]b[U W\ca a Ybh`_Yb hc h\Y `]bY]b W\gY h\Y gdUW\g UbX`cf HUVg k YfY]bhYbh]cbU` UbX hc VY_Ydh" K Y UfY Uk UfY cZh\Y ZUW\h\Uh\]g W\cbhfcUX]W\g gca Y cZci f ch\Yf W\c]W\g Vi hW\bg]ghYbWmk]h\ ch\Yf Yb[]bYg" K Y gh]` gh]W_ hc ci f j]Yk h\UhUh h\Y `c[`Yj Y` k Y WUb fUbX a][\hVYk a cfY]bW\ca dUh]V`Y" K Y UfYUXmYI d\gY gca Y a cfY XYH]`g Ubmk Um

' "&"* @c[[]b[

H\Y]bZfa Uh]cb h\Uh [cYg]bhc h\Y `c[`Y WUb VY X] YfYbhZfa @ 5Hg ž UbX a][\hYj Yb X] Yf U V]ha cfY]b h\Y ž hi fY" H\Y a U]b fYUgcb]g h\Uh]bg]XY h\Y Yb[]bY k Y \Uj Y a cfY [fUbi `Uf]mž k \]W\ Zcf]bghUbW\ a YUbg h\Uh k Y ci hdi hgi VhmdY fYUHYX]bZfa Uh]cb k \Yb bcXYg UfY df]bhYX" CZVci fgY k Y W\ci `X \Uj Y c YfYX U W\ca dUh]V]`]hma cXY Vi h]hgYfj Yg bc di fd\gY" Cj Yf h]a Y h\YfY \Uj Y VYyb a Ubmgi VhY W\Ub[Yg hc W\cbhfc` `c[g]b h\Y HgL YW\gmghYa ggc Ubch\Yf cbY]g VYUfUV`Y" =b U g]a]`Uf ZUg\]cbž h\YfY]g U V]hX] YfYbhVY\Uj]ci f k \Yb HgL YI dYW\g]bdi hž k \]W\]b hi fb]g U g]XY Y YW\cZfYa cj]b[h\Y]bhYfW\dh]cb cZ ž UbX / k \]W\ a UXY Zcf WYUbYf W\XY fbi]hY U V]h



\UX UWW a i `UhYX Ug g]XY Y YW h cZ W b h]bi ci g UXUdhUh]cbg]b h\Y Hg L YW tgmghYa gL" H\YfY k Ug
U`fYUXmW tXY h\Uhk Ug bYj Yf Yl YW hYXž g]a d`mUg g]XY Y YW h cZ h\Y k Um@ 5Hg L]b]h]U`]nYg]hgY`Z
fb bY bY YXg hc YbUV`Y WUggYg cZ df]a]h]j Yg Zcf]bghUbW t"



(I g]b[@ 5A 9H5H9L

("% =b]h]U`]nUh]cb

("%"% @ 5A 9H5H9L Ug U @ 5]bhYfdfYhYf

5`h\ci [\ @ 5A 9H5H9L]g df]a Uf]`ma YUbhUg U H9L Yb[]bYž]hWUb U`gc gYfj Y Ug U ghUbX U`cbY @ 5]bhYfdfYhYf" H\YfY UfY hk c k Umg hc a U_Y @ 5A 9H5H9L VY\Uj Y`_]Y U ghUbXU`cbY @ 5]bhYfdfYhYf.

]ZU!!`i Ucb`mcdh]cb]g []j Yb cb h\Y Wta a UbX`]bYžcf

]Zh\Y cb`mbcb!cdh]cb Uf[i a Ybhf \YŁcb h\Y Wta a UbX`]bY \Ug h\Y Yl hYbg]cb`i Ucf`i W

=b h\]ga cXYž]hk]`gYh@ 5 g Uf [O\$Qhc h\Y Zci bX gW]dhbUa Yždi g\]b[dfYWX]b[cdh]cbg]b bY[! Uh]j Y j U`i Yg UbX h\Y fYghcZh\Y Wta a UbX`]bY]b h\Y dcg]h]j Y j U`i Ygž`gh`]_Y h\Y @ 5]bhYfdfYhYf XcYg"

@ 5A 9H5H9L k]``Yl]h]a a YX]UhY`mUZhYf Yl YW h]b[h\Y gdYW] YX @ 5 gW]dh UbX]gž]b Y YWž U gca Yk \UhVi`_mghUbX U`cbY @ 5]bhYfdfYhYf k]h\ U Vi bWŁ cZYl hfU dfY`cUXYX`]VfUf]Yg"

K \Yb bc Uf[i a Ybh]g []j Ybž @ 5A 9H5H9L k]``cc_ Zcf U @ 5`Y k]h\ h\Y gUa Y bUa Y Ug h\Y V]bUfmUbX fi b h\UhcbY k \Yb dfYgYbh" H\]g a U_Yg]h dcfg]V`Y hc i gY h\Y Yb[]bY Ug U ghi V" : cf]bghUbWž]b 7CBH9LH U gma`]b_ Zfca ahl fi b hc hmdY`i Ua YhUhYl k]`fi b h\Y ahl fi b"`i U gW]dh k \Yb dfYgYbh]b h\Y gUa Y dUh\ Ug h\Y V]bUfm]hgY`Z

("%"& C h\Yf Wta a UbX`]bY dfcWgg]b[

K \Yb h\Y @ 5A 9H5H9L Yl YW hUV`Y ghUfhgž]h`cc_g Zcf h\Y!!`i U Wta a UbX`]bY cdh]cb" =Zh\YfY]g bc!!`i U cdh]cbž h\Y Wta a UbX`]bY]g]bhYfdfYhYX]b U g]a]`Uf ŽUg\]cb Ug h\Y ch\Yf H9L Yb[]bYg" 5``cdh]cbg UfY UWWdhYX Vi hcb`mgca Y UfY i bXYfghccX Vm@ 5A 9H5H9L]hgY`Z

!! WYX] hg	X]gd`UmWYX]hg UbX Yl]h
!! Zah1: CFA5H	`cUX h\Y Zcfa Uh`Y : CFA5H
!! \Y`d	X]gd`Um\Y`d UbX Yl]h
!!] b]	VY] b]`i UhYl ž Zcf Xi a d]b[Zcfa Uhg
!! ^cVbUaY1GHF=B;	gYh h\Y`cV bUa Y hc GHF=B;
!!`i U1: =@9	`cUX UbX Yl YW hY U @ 5]b]h]U`]nUh]cb gW]dh
!! j Yfg] cb	X]gd`Umj Yfg]cb UbX Yl]h

H\YfY UfY`Ygg cdh]cbg h\Ub k]h\ @ 5H9Lž VYWUi gY cbY \Ug hc XYU`k]h\ h\Ya]b @ 5 Ubrk UmĦ H\YfY UfY bc cdh]cbg hc YbhYf U gUZYf a cXY cf Wcbhf`Yl YW h]b[dfc[fUa g" H\]g WUb YUg]mVY UWX]Yj YX k]h\ U ghUfhi d @ 5 gW]dh"

H\Y j U`i Y hc i gY Zcf P^cVbUaY]g XYWXYX Ug Zc`ck g.



≡!! ^cVbUaY]g []j Yb cb hAY Wca a UbX `]bYž]hg Uf[i a Ybh k]` VY hAY j U'i Y Zcf P^cVbUaYž k]h\ci hUbmV\Ub[Yg" H\Y Uf[i a Ybh k]` bchVY i gYX Zcf UW\i U`]bdi hgc]hbYYX bchYI]gh" H\Y !! ^cVbUaY gk]h\X cb`mWcbhfc`g hAY P^cVbUaY gYh]b["
C hAYfk]gYž P^cVbUaY k]` VY hAY bUa Y cZ hAY fgh `Y hUh]g fYUX Zfca hAY `Y gmghYa ž k]h\ UbmdUh\ Wca dcbYbhg UbX hAY `UghYI hYbg]cb fhAY dUfhZc`ck]b[hAY `Ugh" Ł ghf]ddYX c "
H\YfY]g Ub YI Wdh]cb hc hAY dfYj]ci g dc]bh]Z hAY Wca a UbX `]bY [cYg]bhc]bhYfUW\j Y a cXY fVmg hUfh]b[k]h\ U Wca a UbXŁ UbX hAYfY UfY bc `Yg]bdi h j]U PYj Yf m^cV Y]hAYfž hAYb hAY P^cVbUaY]g gYh hc hYI di h Ug U `UghfYgcfh"

B YI h hAY]b]h]U`]nUh]cb gW]dh]g `cUXYX UbX YI YW hYX" : fca k]h\]b hAY gW]dhž hAY Ybh]fY Wca ! a UbX `]bY]g Uj U]UV`Y]b hAY @ 5 hUV`Y Uf[ž VY[]bb]b[k]h\ Uf[O\$Ož WcbhU]b]b[hAY bUa Y cZ hAY YI YW hUV`Y" 5g WcbgYei YbW k Ufb]b[g UVci hi bfYWŁ b]nYX cdh]cbg UfY gi ddfYggYX"

7ca a UbX `]bY dfcWgg]b[\UddYbg j YfmYUf`mcb" Gc YUf`nž]b ZUWž hUh bcbY cZ HgŁ g]b]h]U`]nU! h]cbg \Uj Y HU_Yb d`UW mYh" H\Y @ 5 `]VfUf]Yg hUh Xcb hXYU` k]h\ HgŁ UfY]b]h]U`]nYX YUf`nž

@ 5A 9H5HgŁ U`ck g gca Y cZ hAY Wca a UbX `]bY cdh]cbg hc VY cj Yff]XXYb VmfYUX]b[j U'i Yg Zfca hAY hYI WcbZ] [hUV`Y Uh hAY YbX cZ gW]dhYI YW h]cb fgY Y hAY XYgW]dh]cb cZ hAY hYI WcbZ] [hUV`Y `UhYf cb]b h\]g XcW a YbhZcf a cfY XYhU]`g cb k \]W\ cbYg YI UW`nŁ"

Gc `Yhg gi a a Uf]nY h\]g" H\Y \UbX`]b[cZ k \Yb]g WU`YX ^cVbUa Y]g U V]hWca d`YI " H\YfY WUb VY YI d`]W]h bUa Yg gYhcb hAY Wca a UbX `]bY Vi hk \Yb bchgYh hYmWUb VY HU_Yb Zfca hAY hYI WcbZ] [hUV`Y"

ghUfhi d `YbUa Y !!` i U U @ 5 Z]`Y
ghUfhi d ^cVbUa Y !! ^cVbUaY U HgŁ hYI hYI WcbZ] [" ^cVbUaY
ghUfhi d Xi a dbUa Y !! Zah U ZcfaUh Z]`Y hYI WcbZ] [" ZcfaUh bUaY

H\YgY bUa Yg UfY]b]h]U`]nYX UW\cfX]b[hc !!` i Ucb` mcf hAY fgh `YbUa Y gYYb]b hAY `]ghcZcd! h]cbg" GdYW\U` fFYUha Ybhcz/ UbX Ł Ug k Y` Ug]bhYfUW\j Y ghUfhi d]g [cbY"

K \Yb k Y UfY]b HgŁ a cXY Uhgca Y dc]bh hAY Yb[]bY bYYXg U `YbUa Yž Zcf]bghUbW Zcf cdYb]b[U `c[`Y" 5h hUh a ca Ybh hAY gYh ^cVbUa Y VYWca Yg hAY]bhYfbU` cbY UbX k \Yb]h\Ug bchVYYb gYh k \]W\]bhYfbU`]nYX hc ^cVbUa Y Vi hk \Yb bchgYh VYWca Yg hYI di h" K \Yb mci gYY U hYI di h" `c[`Y gca Yd`UW cb mci f gmghYa]hbcfa U`m]bX]WUhYg U VUX fi b"

K \Yb fi bb]b[cb A G K B8CK G hAY Wca a UbX `]bYž `YbUa Ygž Ybj]fcb a Ybh j Uf]UV`Y UW\gg YhW]bhYfbU`mi gYg hAY W ffYbh WXY dU[Y Vi h hc hAY i gYf]g YI dcgYX Ug I H: , " B cfa U`mi gYfg k cb h bch]W h\]g"

("& @ 5 VY\Uj]ci f

("&"% H\Y @ 5 j Yfg]cb

K Y W ffYbh`mi gY @ 5) "(UbX k]` Zc`ck XYj Y`cda Ybhg cZ hAY `Ub[i U[Y Vi hbcfa U`mk]h\ gca Y XY`Um hAYfYZcfY hAY i gYf bYYXg hc _YYd Ub YnY cb fgi VhYŁX] YfYbW\g]b gi W\gg] Y j Yfg]cbg cZ hAY `Ub[i U[Y" < YfY]g Ub YI Ua d`Y cZ cbY Ug dYW"

@ 5g hcghf] b[Z bW]cb fUbX ghf] b[" ZcfaUhŁ a UmfYh fi b j U'i Yg]b gW]Ybh] WbchUh]cbž hAYfYVm WcbZ] g]b[hAY HgŁ YbX cZ h\]b[g k \Yb]h]g i gYX Ug hAY f][\h\UbX g]XY cZ Ub Ugg][ba Ybh hc U



PX]aYb cf PWci bh" H\Y ci hdi h cZ h\YgY gYf]U]nYfg U`gc XYdYbX cb h\Y @! 5 j Yfg]cbž gc]b @! 5) "" mci WUb [YhX] YfYbhci hdi h h\Ub Zfca) "&" ð]g VYghbchc XYdYbX h\Y Ui hca Uh]WWUgh Zfca ghf]b[hc bi a VYf UbX j]gY j YfgU Ug h\]g WUb V\Ub[Y]b Ž hi fY j Yfg]cbg"

("&"& @cWU`Yg

ðb ghcW_ @! 5ž a Ubm h\]b[g XYdYbX cb h\Y WffYbh `cWU`Y" ðb @! 5A 9H5H9Lž k Y WUb h Xc h\Uhž VYWUj gY]ha U_Yg XcW a Ybhg i bdcfHUV`Y" K \]Y @! 5A 9H5H9L]g fi bb]b[]Z ZcfWg h\Y Zc`ck]b[`cWU`Y gYH]b[g.

@7S7HMD917

@7S7C@@5H917

@7SBI A9F=717

H\YfY]g bc k Umhc V\Ub[Y h\Uh Ug]h k ci `X]bhYfZYfY VUX`mk]h\ h\Y cŽYb `Ub[i U[Y gdYVW W Vcbj Yfg]cbg bYXXYX Uh h\Y H9L YbX"

("" @! 5 a cXi `Yg

CZ Vci fgY h\Y fY[i `Uf @! 5 a cXi `Yg UfY dfYgYbh" ðb UXX]h]cb k Y dfcj]XY h\Y `dY[`]VfUfmVm FcVYfhc ðYfi gU]a gV\ñ H\]g `]VfUfm]g bchI B=7C89!Uk UfYž Vi h]bhYfdfYhg ghf]b[g cb U VmH!dYf! VmH VUg]g" H\]g a U]b`ma YUbg h\Uh`dY[" G WUbbchVY i gYX k]h\ I H: , V\UfUWYfg h\Uh bYXX a cfY h\Ub cbY VmHž UbX h\i g `dY[" G k]` `cc_ Zcf cbY cZ h\cgY Hk c VmH]g k \Yb a UhV\]b[ž bch h\Y Vca V]bUh]cb cZ h\Y Hk c" H\Y gUa Y]g Hfi Y Zcf `dY[" Fž U`h\ci [\ h\Y `UhYf k]` X]gd`UmUb Yffcf a YggU[Y]Zi gYX k]h\ a i `h]VmH V\UfUWYfg" H\YfYZcfY `dY[" FfifiUÄfiŁ fYgi `hg]b h\Y a YggU[Y VUX Uf[i aYbh , % hc fiffi fifUb[Y ai gh \Uj Y hkc V\UfUWYfg Łžg]bVW hc `dY[žÄ]g Hk c V\UfUWYfg fVmH]g Łžgc UÄ hcH`g h\ fYY" ðb dfUW]VW h\]g]g bc fYU`]ggi Y UbX k]h\ gca Y WUfY mci WUb XYU` k]h\ I B=7C89 `f gh bY"

H\YfY UfY gca Y a cfY `]VfUf]Yg dfYgYbh" H\YgY UfY X]gW ggYX cb U `UHf V\UdhYf" : cf]bghUbVW k Y Ya VYX `i UgcW_Yh Vi h VcbhfUfmhc @! 5H9L Xcb hYa VYX h\Y fY`UHfX @! 5 VcXY" 5b UXUdhYX j Yfg]cb cZ` i UZ] `YgmghYa]g U`gc]bWi XYX" H\YfY]g Ua cfY YI hYbg] Y a Uh\ `]VfUfmUbX h\YfY UfY `]VfUf]Yg h\UhXYU` k]h\ YbWmH]cb UbX Vca dfYgg]cb"

("(HYgh]b[

: cf XYj Y`cda Ybh fYUgcbg mci WUb]b i YbW h\Y i gYX ghUfhi d XUHY UbX h]a Y" 6mgYH]b[h\Y ghUfhSh] aY j Uf]UV`Y]b h\Y hYI VcbZ] [HUV`Y/Ug k]h\ ch\Yf j Uf]UV`Yg k Y i gY h\Y]bhYfbU` bUa Y h\YfY" K \Yb I b] YfgU` H]a Y]g bYXXYXž gYh h\Y Ybhfmi gYSi hVSh] aY]b h\Y hYI VcbZ] [HUV`Y"

ðb 7CBH9LH k Y dfcj]XY h\Y Vca a UbX `]bY Uf[i a Ybh!! bcXUhYg h\Uh XcYg U V]ha cfY h\Ub X]g! UV`b[XUHYg/hUj c]Xg h]a Y XYdYbXYbh]bZfa Uh]cb]b h\Y ci hdi h `Y Zcf]bghUbVW"





' & I g]b[@I 5A 9H5H9L

) 6 Ug]WH9L Yb\UbWā Ybhg

) "% =bhfcXi Wh]cb

) "%%" Df]a]hj] Y VY\Uj]ci f

: fca XUmcbYž @ 5H9L \Ug c YfYX Yl hfU ZYUhi fYg Wēa dUfYX hc h\Y gi dYfgYh cZ D8: H9L ž k \]W [bWi XYg !H9L ž UbX 5@9D<" H\]g \Ug bch VYyb `]a]hYX hc h\Y dchg[V]]hmhc Yl YW hY @ 5 WēXY j]U PX] fYWh` i UžVi h@ 5H9L U`gc UXXg ž bW]cbU]hmj]U bYk H9L !g]XY df]a]hj] Yg cf Yl hYbg]cbg hc Yl]gh]b[cbYg" h\Y gUa Y]g hfi Y Zcf @ 5A 9H5H9L " Gca Y df]a]hj] Yg \Uj Y` i UhYl]b h\Y]f bUa Y UbX h\YfY k]` VY bc ` i UaYhUhYl j Uf]Ubhg" H\]g]g VYW]i gY k Y Wēbg]XYf @ 5A 9H5H9L hc VY @ 5H9L & ž " 7cbhfUfmc h\Y @ 5H9L Yb[]bY @ 5A 9H5H9L YbUV`Yg U`]hg df]a]hj] Yg" Mēi WUb WcbY fU gY`YWh]cb cŽ df]a]hj] Yg k]h\ U X] YfYbhdY I ž`]_Y.

PX] fYWh` i U o hYl " YbUV` Ydf] a] h] j Ygfifibcf aU` fižhYl " Yl hf Udf] a] h] j YgfIkē q

h\Y Yl hf Udf] a] h] j Yg ž bW]cb fYh fbg h\Y k \c`Y`]ghcf U gi VgYhžgdYW] YX VmcbY cf a cfY _Ym k cfXg WēfYž hYl žYhYl cf ` i UhYl "%@"

6i hVY Uk UfY h\Uh h\Y W f`mVfUW]g a Umbch\Uj Y h\Y dfcdYf PWUhWēXY Ugg] bYX hc h\Ya Uh h\]g YUf`mh]a Y f[]j]b[U A]gg]b[bi a VYf Yffcfēžgc]ha UmVY bYYXYX hc di h\YgY Ugg] ba Ybhg VYZcfY h\Y UVcj Y`]bY.

PWUhWēXY TPo1%

PWUhWēXY TPq1&

A cfY bY! [fU]bYX df]a]hj] Yg Wēbhfc`]g dchg[V`Y UbX mēi WUb`cc_ i d h\Y XYhU]`g]b gYWh]cb %%" "%) " h\YfY UfY cb`mh\fYY _]bXg cZ df]a]hj] Yg. hYl žYhYl UbX ` i UhYl Vi hU ž hi fY j Yfg]cb a] [\hXfcd h\]g UbX bc `cb[Yf a U_Y h\UhX]gh]bW]cb Ug]hbc `cb[Yf gYfj Yg U di fdcgY"

) "%& 9I dYf]a Ybhg

h\YfY UfY UZYk Yl hYbg]cbg hc h\Y Yb[]bY fY[UfX]b[h\Y a UW`c a UW]bYfñ Gca Y UfY U`fYUXmk Y` hYghYX Vi hch\Yfg UfY fgh]`ēYl dYf]a YbhU`" 5`hci [\ h\YmUfY`]_Y`mhc ghUnž h\Y]f Yl UW hVY\Uj]ci f a] [\hYj c`j Y" 6YW]i gY @ 5A 9H5H9L]g U`gc i gYX Zcf Yl dYf]a Ybhgž h\]g]g bchU dfcV`Ya " K Y WUb U`k Umg XYW]XY hc U`gc UXX gca Y cZ k \Uh]g X]gW ggYX \YfY hc @ 5H9L ž Vi h]h k]` \UddYb k]h\ U XY`Um

h\YfY UfY U` _]bXg cZ ga U`]a dfcj Ya Ybhg h\Uh a] [\h bX h\Y]f k Um]bhc ghcW_ @ 5H9L . U ZYk a cfY \Y`dYfgž gca Y WYUbi d cZ WēXYž YhW K Y` gY" =b UbmWUgYž]Z mēi d`Um k]h\ h\YgY VYZcfY h\YmUfY XYWUfYX ghUV`Yž i bYl dYW]YX g]XY Y YW]g UfY k \Uh mēi \Uj Y hc UWVdh"

% 5hgca Y dc]bh h\]g ž bW]cb a] [\hVY WUb[YX hc fYh fb h\Y k \c`Y`]ghU`k Umg





Zcbh" <ck Yj Yfz k \]Y dfcWgg]b[U`]ghcz h!VY!hmdYgYh bcXYgz]hg WcbHYbHg a Umgh]"` VY gYYb Ug U WUfUWYf" =bg]XY hY Yb[]bY hYfY]g bc WYUf gYdUfUh]cb VYrk YYb hY rk c WcbWdhg" 6YWJi gY hY gi VmdY cZU [`md\ bcXY WUb VY WU b[YX]b @ 5]h]gi d hc hY i gYf" Gi VmdYg `Uf[Yf hU b &))]bX]WUHY hUhZcbhdfcWgg]b[\Ug \UddYbYX"

5 Zyk df]a]hj Yg UfY U YWYX Vmh\]gzU`]b U g]a]`Uf ZUg\]cb. YUW cZ hYa \Ug hc UWta a cXUHY Zcf U `Uf[Yf fUb[Y cZ UWWdhUV`Y bi a VYfg" : cf]bghUbWZ PVUf bck UWWdhg j U i Yg VYrk YYb \$ UbX 1,114,111" H\]g g\ci `X bchVY U dfcV`Ya Zcf k Y`!VY\Uj YX]bdi h `Ygz Vi h]hWci `X WYUHY]b! Wta dUh]V]"hjYg Zcf]bdi h hUhk ci `X \Uj Y [YbYfUHYX Ub Yffcf k \Yb dfcWggYX Vmc`XYf HgL !VUgYX Yb[]bYg" H\Y U YWYX Wta a UbXgk]hU b U`hYfYX]b]hU` fIYZhcZ hY Yei U` g][bLcf gYWcbXUfmff][\h cZ hY Yei U` g][bLj U i Y UfY. PVUfZ P` WcXYZ Pi WcXYZ P^WcXYZ PWUhWcXYZ PgZWcXYZ PYZWcXYZ P` dWcXYZ Pf dWcXYZ PVUf XYZ"

5g ZUf Ug hY WfY Yb[]bY]g WcbWfbYXZ U`]bdi hUbX ci hdi h hc hY h `Yg]g i H: !, YbWcXYX" =b! di h `Yg WUb VY dfY!dfcWggYX i g]b[hY fYUXYf WU`VUW`" H\]g k]` VY YI d`U]bYX]b gYW]cb 33" Bcfa U`nUh]cb cZ hY I B=7C89]bdi h]g cb di fdcgY bchVi]`h]b UbX WUb VY \UbX`YX VmU a UWfc dUWU[Y Xi f]b[WU`VUW` dfcWgg]b[" K Y \Uj Y a UXY gca Y dfUW]WU` Wc]Wg UbX hY i gYf \Ug hc `]j Y k]h hLcgY"

Ci hdi h]b VmhY!g]nYX Wxi b_g WUb VY UWX]Yj YX Vmi g]b[WUfUWYfg ^ghci hg]XY cZ hY j U`]X I B=7C89 fUb[YZghUf]b[Uh hY j U i Y 1,114,112 f\$! %\$\$\$E" K \Yb hY h]a Y Wta Yg hc df]bhU WUf! UWYf >= 1,114,112Z @ 5HgL k]` UWH U`mdf]bh hY g]b[`Y VmhY WcfYgdcbX]b[hc a]bi g %Z%(% Z%&"

7cbhfUfmhc chYf HgL Yb[]bYgz hY ci hdi h hc hY hYfa]bU`]g Ug!]g gc hYfY]g bc YgWUd]b[k]h RR" K Y cdYfUHY]b U i H: i b]j YfgY"

) "&"& PI WUf

H\Y YI dUbXUV`Y Wta a UbX PI WUf fYUXg U bi a VYf VYrk YYb \$ UbX 1,114,111 UbX YI dUbXg hc hY UggcWUHYX I B=7C89 WUfUWYf"

) "&" 9I hYbXYX hUV`Yg

5` hfUX]h]cbU` HgL UbX !HgL fY[]ghYfg WUb VY %*!V]hbi a VYfg" H\Y U YWYX Wta a UbXg UfY.

PWci bh	PWci bhXYZ	PVcl	PkX
PX] aYb	PX] aYbXYZ	Pi b\Vcl	P\h
Pg_] d	Pg_] dXYZ	Pi bj Vcl	PXd
Pai g_] d	Pai g_] dXYZ	PWcdm	PgYhVcl
PaUf_g	Phc_gXYZ	Pi b\Wcdm	Pj gd`] h
Phc_g	P] bgYf h	Pi bj Wcdm	

: cbhg UfY `cUXYX j]U @ 5 UbX U a]b]a U` Ua ci bhcz]bZcfa Uh]cb]g _YdhUh hY HgL YbX" G\Uf]b[fYgci fWg]gi d hc hY `cUXYfg" H\Y Yb[]bY XcYgb hfYU`mWUfY UVci hk \UhU WUfUWYf fLf [`md\ E bi a VYf fYdfYgYbHg fU I B=7C89 cf]bXYI E Ug]hcb`m]g]bhYfYghYX]b X]a Ybg]cbg"



) "' 5hkf]Vi hYg

) "' "% B cXYg

K \Yb Hg_L fYUXg]bdi h]hk j`]bhYfdfYh hY ghfYUa UWwcfX]b[hc hY dfcdYfh]Yg cZ hY V\UfUWYfg" Gca Y g][bU` U a UWc bUa Y UbX hf][[Yf YI dUbg]cbž chYfg cdYb UbX WcgY [fci dgž hf][[Yf a Uh a cXYž YhW K \Uhg`YZh cj Yf VYVta Yg hY hmdYgYh hYI h" ðhYfbU`mk Y [Yh U`]b_YX`]ghcZ bcXYg" 7\UfUWYfg VYVta Y [`md\ bcXYg hUh \Uj Y Zcf]bghUbW U Zcbh UbX V\Uf dfcdYfhmUbX P_Yfb %\$dh VYVta Yg U_Yfb bcXY k]h\ U k] Xh\ dfcdYfhm GdUWg UfY U`Yb hc Hg_L Ug hYmUfY hi fbYX]bhc [`i Y bcXYg" Gcž U g]a d`Y dUfU[fUd\]g a cghmU a]I cZ gYei YbWg cZ [`md\ bcXYg fk cfXgk UbX [`i Y bcXYg fgdUWgk" 5 bcXY WUb \Uj Y U gi VhmdY gc hUh]hWUb VY fYVta [b]nYX Ug Zcf]bghUbW U gdUW fY`UhYX [`i Y"

H\Y gYei YbWg cZ V\UfUWYfg Uh gca Y dc]bh UfY YI hYbXYX k]h\ X] gWbcXYg hUh fY`UhY hc \m d\YbUh]cb" 5ZhYf hUh Zcbh`c[]WUUb VY Udd`YX UbX k Y [Yh U`]gh k \YfY gca Y V\UfUWYfg WUb VY fYd`UWYXž Zcf]bghUbW a i`hjd`Y V\UfUWYfg WUb VYVta Y cbY`][Uhi fYž UbX Zcbh_Yfbg WUb VY]b`YWYX" H\]g]g Xf]j Yb VmhY ZcbhdfcdYfh]Yg"

6cl Yg fl[_Y P\Vcl UbX Pj Vcl EYVWta Y\`] gh cf j`] gh bcXYgk]h\ k] Xh\ž\Y] [\hžXYdh\ UbX g\] Zh dfcdYfh]Yg UbX U dc]bhYf`] gh hc]hg UW i U` VtbhYbh" 6cl Yg WUb VY Vtbghfi WYX YI d`]Vhmc f WUb VY hY fYgi`hcZ gi VdfcWggYg" : cf]bghUbWž k \Yb`]bYg UfY Vfc_Yb]bhc dUfU[fUd\gž hY`]bYg UfY U`]b_YX`]ghcZ\`] gh bcXYgž dcgg]V`mk]h\ [`i Y UbX dYbU`h]Yg]b VYhk YYb"

ðhYfbU`mbcXYg \Uj Y U bi a VYf" H\]g bi a VYf]g UW i U`mUb]bXYI]b hY a Ya cfmi gYX hc ghcfY bcXYg"

Gcž hc gi a a Uf]nY. U` hUh mci YbhYf Ug VtbhYbh Yj Ybhi U`mVYVta Yg U bcXYž cZhYb Ug dUfh cZ U fbYghYX E`]ghghfi W i fY" H\Ym\Uj Y U fY`Uh]j Y ga U` a Ya cfmcZchdf]bhUbX WUffmcb`mhY a]b]a U` Ua ci bh cZ]bZcfa Uh]cb bYXYX" ð h fUX]h]cbU` Hg_L U V\UfUWYf bcXY cb`m\Y`X hY Zcbh UbX g`ch bi a VYfž]b @ 5Hg_L k Y U`gc ghcfY gca Y `Ub[i U[Y fY`UhYX]bZcfa Uh]cbž hY YI dUbg]cb ZUWcfž YhW Bck hUh k Y \Uj Y UWYgg hc hYgY bcXYg Zfca @ 5]h a U_Yg gYbgY hc VY UV`Y hc WUffma cfY]bZcfa Uh]cb k]h\ U bcXY UbX h\]g]g k \YfY UHf]Vi hYg _]W_]b"

) "' "& 5hkf]Vi hY fY[]ghYfg

5Hf]Vi hYg UfY UWta d`Yh`mbYk VtbWdh]b @ 5Hg_L " GmbhUW]WU`nž hYmVY\Uj Y U`ch`]_Y Wci bhYfg. UHf]Vi hYg cVYmHg_L g bYgh]b[ghUW_ UbX WUb VY i gYX UZhYf Ph\Y YhW 1 gh`]_Y hY bcfa U` PWci bh fY[]ghYfg"

PUhhf] Vi hY %!V]hbi a VYf cdh]cbU` Yei U`g ' &!V]hbi a VYf

PUhhf] Vi hYXYZ WgbUa Y cdh]cbU` Yei U`g %!V]hbi a VYf

7cbWdhi U`nž Ub UHf]Vi hY]gY]hYf gYh cf i bgYh" I bgYhUHf]Vi hYg \Uj Y UgdYW]U` bY[Uh]j Y j U`i Y hc]bX]WUhY hUh hYmUfY i bgYhž hUh j U`i Y]g hY`ck Ygh`Y[U` j U`i Y. !`+: :::::]b \YI UXYW]a U`ž U`_ "U" -2147483647]b XYW]a U` ð Zc`ck g hUh hY j U`i Y !`+: ::::: WUbbchVY i gYX Ug U`Y[U` UHf]Vi hY j U`i Yž Vi hnci WUb Ugg][b !`+: ::::: hc i bgYh Ub UHf]Vi hY" 5` UHf]Vi hYg ghUfhci h]b h\]g i bgYh ghUhY]b ð Hg_L "

5Hf]Vi hYg WUb VY i gYX Ug YI hfU Wci bhYf j U`i Ygž Vi h hY]f i gYž `bYgg Wta Yg a cghmZfca hY ZUW hUh hY bi a VYfg UbX j U`i Yg cZ U` gYh UHf]Vi hYg UfY UHUVX YX hc U` bcXYg WYUHYX]b hY]f



gWdY" H\YgY WUb h\Yb VY ei Yf]YX Zfca Ubm@ 5 WcXY h\UhXYU`g k]h\ bcXY dfcWgg]b[" : i fh\Yf]bZcfa Uh]cb UVci h\ck hc i gY Uhhf]Vi hYg Zcf bcXY `]ghdfcWgg]b[Zfca @ 5]g []j Yb]b V\UdhYf - " 5hhf]Vi hYg UfY ghcfYX]b U gcfhYX fgdUfgY`b_YX `]ghh\UhUfY g\UfYX k \Yb dchg]V`Y" H\]g dYfa]hg Y]WYbhhYgh]b[UbX i dXUh]b[" Mti WUb XY bY a Ubmh\ci gUbXg cZUhhf]Vi hYg Vi hbcfa U`mgi V\ U `Uf[Y bi a VYf a U_Yg bc gYbgY UbX]g U`gc bchh\UhY]WYbhhYVWUi gY YUW\ bcXY WUff]Yg U fdcgg]V`m g\UfYX`b_Y`hc U `]ghcZW ffYbhmgyhUhhf]Vi hYg" 6i h\h\YmUfY U Wcbj Yb]YbhYi hYbg]cb UbX cbY cZ h\Y fghYi hYbg]cbg k Y]a d`Ya YbhYX]b @ 5HgL"

=b @ 5A 9H5HgL k Y hfmc a]b]a]nY h\Y a Ya cfmZchdf]bh UbX WYUh]cb cZ h\YgY Uhhf]Vi hY `]ghg a cfY U[[fYgg] Y g\Uf]b[h\Ya " H\]g ZYUhi fY]g gh` gca Yk \UhYi dYf]a YbhU"

) "' " 6cl Uhhf]Vi hYg

B cXYg hmd]WU`mfYVW]j Y h\Y `]ghcZUhhf]Vi hYg h\Uh]g]b Y YW\k \Yb h\YmUfY WYUhyX" H\]g a ca Ybh WUb VY ei]hY UgmbV\fc bci g" : cf YI Ua d`Y.]b dUfU[fUd\ Vi]`X]b[ž h\Y]bX]j]Xi U` `]bY Vcl Yg UfY WYUhyX UZhYf h\Y PdUf Wca a UbX \Ug VYyb dfcWggYXž gc h\Ymk]` fYVW]j Y h\Y `]ghcZUhhf]Vi hYg h\Uh]g]b Y YW\ h\Ybž bchh\Y Uhhf]Vi hYg h\Uh k YfY]b Y YW\]bž gUa h\Y fghcf h\]fX `]bY cZ h\Y dUfU[fUd\"

G]a]`Uf g]hi Uh]cbg \UddYb]b @ 5HgL fY[i `Uf`m 5 ZYk cZ h\Y a cfY cVj]ci g dfcV`Ya Uh]WWUgYg UfY XYU`h k]h\ h\Y Uhhf]Vi hYg Zcf bcXYg h\Uh UfY WYUhyX Xi f]b[\md\YbUh]cbž_Yfb]b[UbX `][Uhi f!]b[Vcffck h\Y]f Uhhf]Vi hYg Zfca h\Y]f gi ffc i bX]b[[`md\gž UbX]h]g dchg]V`Y hc]b i YbW Vcl Uhhf]Vi hYg X]fYVW`m

K \Yb mci UggYa V`Y U Vcl]b U fY[]ghYfž h\Y Uhhf]Vi hYg cZ h\Y bcXYg WcbhU]bYX]b h\Y Vcl UfY i bV\Ub[YX k \Yb gi V\ U Vcl]g d`UW\Xž i bVcl YXž cf Wcd]YX" =b h\]g fYgdYW\ Uhhf]Vi hYg UW\ h\Y gUa Y Ug V\UfUWYfg h\Uh \Uj Y VYyb Wcbj YfhYX hc fYZfYbW\g hc [`md\g]b Zcbtg" : cf]bghUbW\ž k \Yb mci i gY Uhhf]Vi hYg hc]a d`Ya Ybh Wc`cf gi ddcfhž YUW\ bcXY WUff]Yg]bZcfa Uh]cb UVci h]hg Yj Ybhi U` Wc`cf" =b h\UhWUgYž i b`Ygg mci]a d`Ya Ybha YW\Ub]ga g h\UhXYU` k]h\]hž Udd`m]b[U Wc`cf hc U`fYUXmVcl YX a UhYf]U` k]` \Uj Y bc Y YW\ ? Yyd]b a]bX h\Uh h\]g]bWca dUh]V`]hm]g a cghm Xi Y hc h\Y ZUW\ h\UhgydUfUhy gdYVU`g UbX `]hYfU`g UfY U a cfY i bbUhi fU` UddfcUW\ hc Wc`cf g h\Ub Uhhf]Vi hYg"

=h]g dchg]V`Y hc bY!hi bY h\Y `]ghcZUhhf]Vi hYg h\Uh UfY Udd`]YX hc U \Vcl ž j Vcl cf j hcd Vmh\Y i gY cZ h\Y _Ynk cfX Uhhf" H\Y Uhhf _Ynk cfX fglg\ci `X Wca Y VYZcfY U hc cf gdf YUXž]Z h\Uh]g U`gc gdYV\ YX" 5b YI Ua d`Y]g.

PUhhf] Vi hY-- +1%&'

PUhhf] Vi hY-- , 1() *

PgYhVcl \$1P\Vcl o<Y``cq

PgYhVcl &1P\Vcl Uhhf --- 1 +, - Uhhf --, 1 !~+: ::::: o<Y``cq

6cl \$ bck \Ug Uhhf]Vi hYg -- + UbX --, gYhk \]`Y Vcl & \Ug Uhhf]Vi hYg -- + UbX --- gYhk \]`Y h\Y bcXYg]bg]XY h\UhVcl k]` U` \Uj Y Uhhf]Vi hYg -- + UbX --, gYh" 5gg][b]b[h\Y a UI]a i a bY[Uh]j Y j U`i Y WUi gYg Ub Uhhf]Vi hY hc VY][bcfYX"

Hc []j Y mci Ub]XYU cZ k \Uh h\]g a YUbg Uh h\Y @ 5 YbXž hU_Y h\Y Zc`ck]b[WcXY.

Zcf V1\$ž&ž& Xc

Zcf U1-- +ž --- Xc



hYI " gdf] bhfl" Vcl "ž Vž " . Uhhf "žUž" . "žhcghf] b[flhYI " Vcl OVQ OUQŁŁ
hYI " gdf] bhfl" PPei UXPPei UX"Ł
hYI " gdf] bhfl"] gh "žVž " . Uhhf "žUž" . "žhcghf] b[flhYI " Vcl OVQ"] ghOUQŁŁ
hYI " gdf] bhfl" PPdUf"Ł

YbX

YbX

@UHyf k Y k]` gYY H\Uh mci WUb UWWgg dfcdYfh]Yg cZU bcXY" H\Y Vcl Yg \YfY UfY gc WU`YX \`] gh
bcXYg H\Uh \Uj Y U Y`X `] gh H\Uh dc]bhg hc H\Y VŁbhYbH" 6YWUi gY H\Y UHhf]Vi hYg UfY U`]gh H\Ya !
gYj Yg mci WUb UWWgg H\Ya Vm]bXYI]b[H\Y bcXY f\YfY k Y Xc H\Uhk]H OUQŁ" F i bb]b[H\]g gb]ddYh
[]j Yg.

Vcl \$. Uhhf --+ . %&' `] gh \$. Uhhf --+ . %&'
Vcl \$. Uhhf --, . ()* `] gh \$. Uhhf --, . ()*
Vcl \$. Uhhf --- . b]` `] gh \$. Uhhf --- . b]`
Vcl & . Uhhf --+ . %&' `] gh & . Uhhf --+ . %&'
Vcl & . Uhhf --, . b]` `] gh & . Uhhf --, . ()*
Vcl & . Uhhf --- . +, - `] gh & . Uhhf --- . b]`

6YWUi gY gca Y j U`i Yg UfY bchgYhk Y bYYX hc Udd`mh\Y hcghf] b[Ži bW]cb \YfY gc H\Uhk Y [YhH\Y
k cfX b]` "

5 gdYWU` _]bX cZ Vcl]g Pj WbHYf" H\]g cbY U`gc WUb \Uj Y UHhf]Vi hYg" K \Yb cbY cf a cfY UfY
gYhH\YgY d`i g H\Y W ffYbhmgYhUHhf]Vi hYg UfY Vci bX hc H\Y fYgi `h]b[Vcl " ð fY[i `Uf HgŁ H\YgY
WbHYfYX Vcl Yg UfY cb`mdYfa]hYX]b a Uh a cXYžVi h]b @i 5A 9H5HgŁ H\YfY]g bc Yffcf a YggU[Y
UbX H\Y Vcl H\Y \Y][\hUbX XYdh\ UfY Yei U`mX]j]XYX" CZ WŁi fgY]b hYI ha cXY H\YfY]g bc a Uh
UI]g fY`UHfX c gYhUdd`YX"

) "(@i 5 fY`UHfX df]a]h]j Yg

) "("% PX] fYWH` i U

ð cfXYf hc a Yf[Y @i 5 WŁXY k]H HgŁ]bdi hž U ZYk bYk df]a]h]j Yg UfY bYYXYX" H\Y df]a]h]j Y
PX] fYWH` i U]g i gYX hc YI YW hY @i 5 WŁXY]a a YX]UHf`nŁ H\Y gnbHUI]g

PX] fYWH` i U [YbYfU` hYI h

H\Y [YbYfU` hYI h]g YI dUbXYX Ži ``nž UbX H\Yb ZYX]bhc H\Y @i 5]bhYfdfYHYf" 5ZhYf fYUX]b[UbX
YI dUbg]cb \Ug VYYb Udd`YX hc H\Y [YbYfU` hYI h žH\Y fYgi `h]b[hc_Yb `]gh]g WŁbj YfhYX hc Ughf]b[
Ug]Z]hk Ug X]gd`UmYX i g]b[Ph\YPhc_g" Cb H\Y @i 5 g]XYžYUW PX] fYWH` i U V`cW_]g hfYUHfX Ug U
gYdUfUHf WŁi b_" ð gi WŁ U WŁi b_ mci WUb i gY H\Y `cWU` X]fYWH]j Y hc _YYd mci f j Uf]UV`Yg Žfca
]bhYfZYf]b[k]H H\cgY i gYX Vmh\Y a UWc dUW_U[Y"

H\Y WŁbj Yfg]cb hc UbX Žfca U hc_Yb `]gha YUbg H\Uh mci bcfa U`mWUb bchi gY @i 5 `]bY WŁa a Ybhg
fghUfh]b[k]H ! ! Łk]H]b H\Y Uf[i a Ybh" 5g H\YfY hmd]WU`mk]` VY cb`mcbY `]bY H\Y fgh`]bY WŁa !
a Ybhk]` fi b cb i bh] H\Y YbX cZH\Y]bdi h" MŁi k]` Y]H\Yf bYYX hc i gY HgŁ !ghmY `]bY WŁa a Ybhg
fghUfh]b[k]H i Łž cf WŁUb[Y H\Y HgŁ WUhf[cfmWŁXYg `cWU`nŁ 5bch\Yf dgg]V]]hm]g hc gUm

PVY[] b[fci d

PYbX`] bYWXUf1%\$



PX]fYVh`i U " " "
PYbX[fci d

H\Yb @ 5 `]bY V@a a Ybhg WUb VY i gYXž g]bWV HgL XcYg bchfYd`UWV`]bY YbX]b[g k]h\ gdUWVg" CZ
V@i fgY gi V\ Ub UddfcUWV XYdYbXg cb h\Y a UWVc dUW_U[Y h\Uh mci i gY"

H\Y PX]fYVh`i U V@a a UbX]g YI dUbXUV`Y" G]bWV]h dUggYg @ 5 V@XY hc h\Y @ 5]bhYdfYhYf]hg
YI dUbg]cb Zfca h\Y HgL j]Yk dc]bh]gi gi U`mYa dhm < ck Yj Yfzh\YfY UfY gca Y @ 5 Z bWV]cbg h\Uh
dfcXi WV a UhYf]U` hc VY fYUX VmHgL ž h\Y gc WU`YX df]bhZ bWV]cbg" H\Y a cghg]a d`Y i gY cZ h\YgY
]g hYI " df] bhfIOghf] b[2 gŁ" H\Y V\UfUWVYfg cZ h\Y ghf]b[g k]` VY d`UWVX cb h\Y HgL]bdi hVi Yfž
h\Uh]gž VYZcfY HgL g YmYg hc VY fYUX VmHgL]a a YX]UhY`m : cf YI Ua d`Y.

PW@i bh%\$1&\$

UPX]fYVh`i UohYI " df] bhflhYI " V@i bhO%\$QŽ) ŁqV

YI dUbXg hc

U&) V

< YfY]g Ubch\Yf YI Ua d`Y.

`Pd] 1 PX]fYVh`i UohYI " df] bhflaUh\" d] Łq`

k]` fYgi `h]b

= 3.1415926535898

B chY h\Uh h\Y YI dUbg]cb cZPX]fYVh`i U]g U gYei YbWV cZV\UfUWVYfgž bchcZhc_Ybgž V@bhfUfmhc U`
HgL V@a a UbXg" Gc Zcfa U`mgdYU_]b[]hg YI dUbg]cb]g bi ``žVi h]hd`UWVga UhYf]U` cb U dgYi Xc! `Y
hc VY]a a YX]UhY`mfYUX VmHgL ž Ug !HgL g PgWUbhc_Ybg" : cf U XYgWV]dh]cb cZdf]bhZ bWV]cbg `cc_
UhgYVW]cb %%" "% "

6YWUi gY h\Y [YbYfU` hYI h]g U V\i b_ž h\Y bcfa U` @ 5 Yffcf \UbX`]b[]g hf][[YfYX]Z h\YfY]g U
dfcV`Ya]b h\Y]bWi XYX V@XY" H\Y @ 5 Yffcf a YggU[Yg g\ci `X VY WYUf Ybci [\žVi h h\Y V@bHYI !
hi U`]bZcfa Uh]cb]g gh]` dfYhmVUX" C ZhYbž mci k]` cb`mgY Y h\Y `]bY bi a VYf cZ h\Y f][\hVfUWV Uh
h\Y YbX cZ h\Y V@XY"

K \]Y cb h\Y gi V`YVh cZ Yffcf g. gca Y cZ h\Y h]b[g mci WUb Xc]bg]XY @ 5 V@XY WUb VfYU_ i d
@ 5A 9H5HgL dfYhmVUX" =Z mci UfY bchWUfYZ ` k \]Y k cf_]b[k]h\ h\Y bcXY `]gh]bhYfZUWVž mci
a UmYj Yb YbX i d k]h\ UggYfh]cb Yffcf g Zfca k]h\]b h\Y HgL dcfh]cb cZ h\Y YI YW hUV`Y"

) "(" & P` i UYgWUdYghf] b[

H\]g df]a]hj] Y V@bj Yfhg U HgL hc_Yb gYei YbWV gc h\Uh]h WUb VY gUZY`mi gYX Ug h\Y V@bhYbhg cZ U
@ 5 ghf]b[. Ya VYXXYX VUW_g`Ug\Ygž Xci V`Y UbX g]b[`Y ei chYgž UbX bYk `]bYg UbX WUff]U[Y fYh fbg
UfY YgWUdYX" H\]g]g XcbY VmdfYdYbX]b[Ub YI hfU hc_Yb V@bg]gh]b[cZ U VUW_g`Ug\ k]h\ WUhY[cfm
V@XY %&ž UbX Zcf h\Y `]bY YbX]b[gž V@bj Yfh]b[h\Ya hc b UbX f fYgdYVW]j Y`m H\Y hc_Yb gYei YbWV
]g Z `mYI dUbXYX"

P` i UYgWUdYghf] b[[YbYfU` hYI h

A cghcZhYbž h]g V@a a UbX]g bchUWVi U`mh\Y VYghk Umhc XYU` k]h\ h\Y X] YfYbWVg VYhk YYb HgL
UbX @ 5" =b j Yfmg\cfh V]hg cZ @ 5 V@XY]h]g cZhYb bchbYXXYXž UbX Zcf `cb[Yf ghfYH\Yg cZ @ 5
V@XY]h]g YUg]Yf hc _YYd h\Y V@XY]b U gYdUfUH` `Y UbX `cUX]hi g]b[@ 5 g XcZ] `Y.



PX]fYVh`i U o XcZ]`Yfl`amgYhi dg" `i U`Ł q

) "(" P` i UZi bWh] cbž P` i UZi bWh] cbWU` ` UbX P` i UXYZ

H\Y PX]fYVh`i U WŁa a UbXg]bj c`j Yg hC_Yb]nUh]cb cZ]hg Uf[i a Ybh fUZhYf d]W_]b[i d Ub cdh]cbU` bUa Y cf bi a VYf gdYW] WWh]cbŁ" H\Y hC_Yb`]gh]g h\Yb WŁbj YfhYX]bhc U ghf]b[UbX []j Yb hC @ 5 hC hi fb]bhc U Z bWh]cb h\Uh]g WU`YX" H\Y cj Yf\YUX]g fUhYf ga U` Vi h k \Yb mci \Uj Y a]`]cbg cZ WU`g]h WUb \Uj Y gca Y]a dUW" : cf h\]g fYUgcb h\YfY]g U j Uf]Ubh WU` Uj U]UV`Y. P` i UZi bWh] cb" H\]g WŁa a UbX]g i gYX Ug Zc`ck g.

PX]fYVh`i U o

`cWU` h 1 `i U" [YhSZi bWh] cbgShUV` YfŁ
hO&Q 1 Zi bWh] cbfŁ hYI "df] bhfl` `Ł YbX
hO&Q 1 Zi bWh] cbfŁ hYI "df] bhfl` 3`Ł YbX

q

P` i UZi bWh] cb%

P` i UZi bWh] cb&

CZWŁi fgY h\Y Z bWh]cbg WUb U`gc VY XY bYX]b U gYdUfUHY `Y" H\YfY]g bc `]a]hcb h\Y bi a VYf cZ Z bWh]cbg UdUfh ZŁa bŁa U` @ 5 `]a]hUh]cbg" CZWŁi fgY h\YfY]g h\Y `]a]hUh]cb cZbc Uf[i a Ybhg Vi h\Uh k ci `X]bj c`j Y dUfg]b[UbX h\YfYVm[]j Y bc [U]b" H\Y Z bWh]cbž k \Yb WU`YX]b ZUVh [Yhg cbY Uf[i a YbhŁVY]b[h\Y]bXYI žgc]b h\Y Zc`ck]b[YI Ua d`Y h\Y bi a VYf , [Yhg hŁdYgYh"

PX]fYVh`i U o

`cWU` h 1 `i U" [YhSZi bWh] cbgShUV` YfŁ
hO, Q 1 Zi bWh] cbflg` chŁ hYI "df] bhflg` chŁ YbX

q

H\Y P` i UZi bWh] cbWU` ` df]a]hj Y XcYg h\Y gUa Y Vi h]g i bYI dUbXUV`Yž Zcf]bgHUbW`]b Ub PYXYZ" =b UXX]h]cb @ 5HŁL dfcj]XYg U XY bYf.

P` i UXYZPAm i bWh] cb5 %

P[`cVU` P` i UXYZPAm i bWh] cb6 &

PdfchYVhYXP[`cVU` P` i UXYZPAm i bWh] cb7 '

MŁi g\ci `X fYU`mi gY h\YgY WŁa a UbXg k]h\ WUfY" GŁa Y fYZfYbW`g [Yh ghCfYX]b hC_Ybg UbX Ugg i a Y h\Uh h\Y Z bWh]cb]g Uj U]UV`Y k \Yb h\Uh hC_Yb YI dUbXg" Cb h\Y ch\Yf \UbXž Ug k Y \Uj Y hYghYX h\]g Z bWh]cbU`]hm]b fY`Uh]j Y WŁa d`YI g]hi Uh]cbg bŁa U` i gU[Y g\ci `X bch[]j Y dfcV`Ya g"

H\YfY UfY Ubch\Yf h\YfY fgh]` YI dYf]a YbhU`Łdf]a]hj Yg h\Uh VY\Uj Y `]_Y P` i UZi bWh] cb Vi h\Ym YI dYVh h\Y Z bWh]cb hC fYhi fb Ub]bhY[Yfž X]a Ybg]cb fU`gc Ub]bhY[YfŁ cf U [`i YgdYWbcXY" H\Y fYhi fb j U`i Yg [Yhg]b`VWYX]bhc h\Y]bdi h"

P` i UWŁi bhZi bWh] cb -- + %&'

P` i UX] aYbZi bWh] cb -- , %& ' dh

P` i Ug_] dZi bWh] cb --- %& ' dh d` i g %\$dh a] bi g &\$dh

9I Ua d`Yg cZ Z bWh]cb -- +]b h\Y UVcj Y `]bYg UfY.



Zi bWh] cbflē fYhi fb hc_Yb" gWUbS] bhflē YbX
Zi bWh] cbflē fYhi fb %&' (YbX

H\]g]hgY`Z]g bchgdYWUW`Uf gc h\YfY]ga cfY" H\YgY Zi bWh]cbg WUb VY WU`YX]b hkc a cXYg. Y]h\Yf
H9L]g Yl dYWU]b[Uj U'i Yžcf]h]g bchUbX 7 ghYl dUbX]b[h\Y WU`"

`cWU` b 1 \$
Zi bWh] cbflg`chžgWUbb]b[ē
]Z gWUbb]b[h\Yb
fYhi fb b
Y`gY
b 1 hc_Yb" gWUbS] bhflē
YbX
YbX

Gcz Uggi a]b[h\Uh h\Y Zi bWh]cb]g]b g`ch-- +žmci WUb Xc h\]g.

P`i UVēi bhZi bWh]cb --+ %&'
PWēi bh%\$\$1P`i UVēi bhZi bWh]cb --+

5ZhYf k \]W\ PWēi bh %\$\$ \Ug h\Y j U'i Y %&' "

) "((P`i UVmthYWēXY UbX P`i UVmthYWēXYWU``

5bU`c[i Y hc h\Y Zi bWh]cb WU`Yfg X]gW ggYX]b h\Y dfYj]ci g gYWU]cb k Y \Uj Y VmthY WēXY WU`Yfg"
5[U]b h\Y WU` j Uf]Ubh]g i bYl dUbXUV`Y"

PX]fYWU`i U o
`i U" VmthYWēXYO---, Q 1 Zi bWh] cbflgē
hYl "gdf] bhflgē hc_Yb" gWUbS] bhflēē
YbX
`i U" VmthYWēXYO))Q 1 Zi bWh] cbflgē
hYl "gdf] bhflgē hc_Yb" gWUbSX]aYbflēē
YbX

q

H\]gk cf_gk]h\.

P`i UVmthYWēXY ---,) P`i UVmthYWēXY)))))gd
P`i UVmthYWēXYWU` ---,) P`i UVmthYWēXYWU`)))))gd

H\Y j Uf]UV`Y g]b h\Y WēXY]g h\Y bi a VYf cZh\Y VmthY WēXY fY[]ghYf h\UhWUb VY i gYX Zcf X]U[bcgh]W
di fdcgYg" H\Y UXj UbhU[Y cZ VmthYWēXY fY[]ghYfg cj Yf Zi bWh]cb WU`g]g h\Uh h\YmUfY ghcfYX]b h\Y
Zcfa Uh fVi hk]h\ci hi dj U'i Ygē"



) ") 7 UhWcXY hUV`Yg

) ") "% 7 UhWcXYg

7 UhWcXY hUV`Yg UfY U bYk ZYUhi fY h\UhU`ck g mci hc gk jhW hc U dfYXY bYX WUhWcXY fY[ja Y]b U g]b[`Y ghUHYa Ybh" Mti WUb \Uj Y `chg cZX] YfYbh hUV`YgžVi h]Zmci bYXX UXcnYb mci a][\hk cbXYf k \Uh mci fY Xc]b[" H\]g gi VgrghYa]g VUW_k UfX Wta dUh]V`Y.]Z mci bYj Yf i gY h\Y Zc`ck]b[Wta a UbXgž mci f XcW a Ybhk]` bch bch]W UbmX] YfYbW]b VY\Uj]ci f Wta dUfYX hc hfUX]h]cbU` HgL " H\Y WcbhYbhg cZ YUW WUhWcXY hUV`Y]g]bXYdYbXYbh Zfca Ubmch\Yf WUhWcXY hUV`Yž UbX]hg WcbhYbhg]g ghcfYX UbX fYhf]Yj YX Zfca h\Y Zfca Uh `Y"

) ") "& PWhWcXYhUV`Y

PWhWcXYhUV`Y %)!V]hbi a VYf

H\Y df]a]hj Y PWhWcXYhUV`Y gk jhW Yg hc U X] YfYbh WUhWcXY hUV`Y" Gi W U hUV`Y \Ug hc VY dfYj]! ci g`mWYUHYX i g]b[cbY cZh\Y Hk c df]a]hj Yg VY`ck žcf]h\Ug hc VY nYfc" hUV`Y nYfc]g]b]h]U`nYX Vm=B HgL "

) ") "' P] b] hWhWcXYhUV`Y

P] b] hWhWcXYhUV`Y %)!V]hbi a VYf

H\Y df]a]hj Y P] b] hWhWcXYhUV`Y WYUHYg U bYk hUV`Y k]h WUhWcXYg]XYbh]W` hc h\cgY XY bYX Vm=B HgL " H\Y bYk WUhWcXY hUV`Y]g U`cWUHYX [`cVU`m]hk]` bch[c Uk UmUZhYf h\Y W ffYbh[fci d \Ug YbXYX" =Z h\Y gi dd`]YX bi a VYf]g]XYbh]W` hc h\Y W ffYbh`mUWh] Y hUV`Yž Ub Yffcf]g fU]gYX" H\Y]b]h]U` j U`i Yg UfY.

\$	P		YgWUdY
)	RRA	fYhi fb	WUf Sf Yh
-	RR4	bi ``	] [ bcf Y
\$\$	OgdUW2	gdUW	gdUWf
%%	U n		`YhhYf
%%	5 N		`YhhYf
%&	Yj Yfnt\]b[Y`gY		ch\Yf
%(	i		Wta aYbh
%)	RR3	XY`YhY	] bj U`] XSWUf

) ") "(PgUj YWhWcXYhUV`Y

PgUj YWhWcXYhUV`Y %)!V]hbi a VYf

PgUj YWhWcXYhUV`Y Wcd]Yg h\Y W ffYbhgYhcZ WUhWcXYg hc U bYk hUV`Y k]h h\Y fYei YghYX bi a VYf" H\Y XY b]h]cbg]b h\]g bYk hUV`Y UfY U` hfYUHYX Ug]Z h\Ymk YfY a UXY]b h\Y ci hYfa cgh`Yj Y`"

H\Y bYk hUV`Y]g U`cWUHYX [`cVU`m]hk]` bch[c Uk UmUZhYf h\Y W ffYbh[fci d \Ug YbXYX" =Z h\Y gi dd`]YX bi a VYf]g h\Y W ffYbh`mUWh] Y hUV`Yž Ub Yffcf]g fU]gYX"



) "*" Hc_Ybgž Wca a UbXg UbX ghf]b[g

) "*" PgWbYI hc_Ybg

H\Y grbHUI cZPgWbYI hc_Ybg]g]XYbh]W\ hc PgWbhc_Ybg" H\]g df]a]hj] Y]g U g\[\hmUXUdhYX
j Yfg]cb cZ !HgL g PgWbhc_Ybg" H\Y X] YfYbWg UfY.

H\Y `UghfUbX i gi U`mcb`nt`]bY XcYg bch\Uj Y U PYbX`] bYV\Uf UddYbXYX"
PgWbYI hc_Ybg bYj Yf fU]gYg Ub 9C: Yffcfž UbX]hXcYg bchYI YW hY PYj Yf mYcZ hc_Ybg"
H\YfY UfY bc "" k \]Y YbX cZ `Y "" Yffcf hYghg YI YW hYX" H\]g U`ck g h\Y YI dUbg]cb hc YbX
cb U X] YfYbh[fci d]b[`Yj Y` cf k \]Y U WcbX]h]cbU`]g gh]`]bWca d`YhY"

) "*" & Phc_gUddž Phc_gdf Yž PYhc_gUddž PYhc_gdf Yž P[hc_gUddž P[hc_gdf Yž
PI hc_gUddž PI hc_gdf Y

=bghYUX cZ

Phc_g\$PYI dUbXUZhYfoPh\YPhc_g\$ Zccq

mci Wb i gY.

PYhc_gUdd\$Zccq

H\Y dfY j Uf]Ubhg dfYdYbX]bghYUX cZUddYbXž UbX h\Y Y j Uf]Ubhg YI dUbX h\Y dUggYX [YbYfU` hYI h"
H\Y [UbX I j Uf]Ubhg UfY [`cVU"

) "*" "" PWghf] b[ž PVY[] bWgbUaY UbX P` UghbUaYXWg

H\YgY UfY gca Yk \UhgdYWU" H\Y PWghf] b[df]a]hj] Y]g `_Y Pghf] b[Vi h]hca]hg h\Y `YUX]b[
YgWdY V\UfUWYf" H\]g Wb VY gca Yk \Uha cfY Y]WYbh\Ub gh]dd]b[]hUZhYfk UfXg"

H\Y PVY[] bWgbUaY df]a]hj] Y]g `_Y PWgbUaY Vi hXcYgb hWYUhy U fY`UI YX Yei]j U`Ybhk \Yb h\YfY
]g bc gi W bUa Y" =h]g Yei]j U`Ybhk

P] ZWgbUaY ZccPYbXWgbUaY

PWgbUaY ZccPYbXWgbUaY

PZ]

H\Y UXj UbHU[Y]g h\Uh]hgUj Yg U`cc_i d fKcb hYI dYW\ha i W gdYYXi dŁ Vi ha cfY]a dcfHUbh]g h\Uh
]hUj c]Xg i g]b[h\Y P] Z hYgh" H\Y P` UghbUaYXWg]g cbY h\Uh g\ci `X VY i gYX k]h WfY" H\Y UVcj Y
YI Ua d`Y Wci `X VY k f]hYb Ug.

P] ZWgbUaY ZccPYbXWgbUaY

P` UghbUaYXWg

PZ]

H\]g]g g\[\hma cfY Y]WYbh\Ub Wcbghfi W]b[h\Y ghf]b[h k]W fKYd Xck b]b @i 5HgL h\]g U`gc
]bj c]Yg gca Y I H: , 1 [[`]b[Ł Vi hdfcVUV`ma cfY fY`Yj Ubh]g h\Uh]hgUj Yg U ZYk hc_Ybg UbX Wb
a U_Y WcXY U V]ha cfY fYUXUV`Y"



) "*" "(PW YUf aUf _g

H\]g df]a]hj Y Wta d`Ya Ybhg h\Y !H9L a Uf_ df]a]hj Yg UbX WYUfg U a Uf_ WUgg Wta d`YhY`nã fY!
gYH]b[U` h`fYY WtbbYWYX a Uf_ hYI hg hc Ya dhñ ðh]g Ub]a a YX]UhY Wta a UbX"

PW YUf aUf _g %*!V]hbi a VYf

) "*" ") PU`] [baUf _ UbX PU`] [bhUV

H\Y df]a]hj Y PU`] [baUf _ Xi d`]WUhYg h\Y Ž bW]cbU`]hmcZ .]bg]XY U`][ba Ybh dfYUa V`Ygž k \]`Y
PU`] [bhUV Xi d`]WUhYg h\Y Ž bW]cbU`]hmcZ/"

) "*" "*" P` YhVXUf WtXY

H\]g df]a]hj Y WUb VY i gYX hc Ugg][b U a YUb]b[hc Ub UWh]j Y VXUfUWYfž Ug]b.

PXYZPZccoVUf q P` YhVXUf WtXY%&' 1PZcc

H\]g WUb VY U V]h b]WYf h\Ub i g]b[h\Y i ddYfWUgY hf]W_g fl g]b[h\Y dfcdYfhmcZ Pi ddYfWUgY h\Uh
]h hfYUhg UWh]j Y VXUfUWYfg gdYV]U`L"

) "*" "+ P[` Yh

H\]g df]a]hj Y]g g]a]`Uf hc.

PdfchYWhYXPXYZP[` YhoP[` cVU` P` Yhq

Vi h ŽUghYf fcb`ma YUgi fUV`Y k]h\ a]`]cbg cZ WU`gŁ UbX dfcVUV`ma cfY Wt bj Yb]Ybh fUZhYf U` k Y
U`gc \Uj Y P[XYZL"

) "*" ", PYI dUbXYXž P] aaYX] UhYUgg] [baYbh UbX P] aaYX] UhYUgg] [bYX

H\Y PYI dUbXYX df]a]hj Y HU_Yg U hc_Yb `]gh UbX YI dUbXg]hg Wt bhYbh k \]W WUb Wta Y]b \UbXm
]hUj c]Xg U hf]W_ma]I cZ PYI dUbXUZhYf UbX PbcYI dUbX" Mti WUb Wta dUfY]hk]h\ k \Uh\UddYbg
]bg]XY h\Y VcXmcZ Ub PYXYZ" 6i h h\]g _]bX cZ YI dUb g]cb gh]` XcYgb h YI dUbX gca Y df]a]hj Y
cdYfUh]cbg"

PbYkWti bhPBi aVYf CZ7U` ` g

PXYZPHYghAYoPUXj UbWPPBi aVYf CZ7U` ` g% q

PYXYZPHYghYXoPHYghAY Zcc. Ph\YPBi aVYf CZ7U` ` gq
PYXYZPHYghYXoPHYghAY Zcc. Ph\YPBi aVYf CZ7U` ` gq
PYXYZPHYghYXoPHYghAY Zcc. Ph\YPBi aVYf CZ7U` ` gq

PaYUb] b[PHYghYX

H\Y fYgi `h]g U a UWc h\Uh\Ug h\Y bchYI dUbXYX WtXY]b]hg VcXm



a UŴc.!2 PUXj UbWŴ FB i a VYfC Z7 U`g % Zcc.\$

≠bghYUX k Y WŴb XY bY PHYghAY]b U k Umh\ UhYI dUbXg h\Y Ugg][ba Ybh]a a YX]UHŴ`nŴ Mti bYYX cZ
Wti fgY hc VY Uk UfY cZ dfYj Ybh]b[`cc_ U\YUX]bhYfZYfYbWŴ Vmi g]b[U gdUWŴ cf PfY` UI ftZhYb Ub
YI dfYgg]cb k cf_g VYHŴf Ug]h XcYgb h`YUj Y Ub PfY` UI Ł"

PXYZPHYghAYoP] aaYX] UhYUgg] [baYbhPUXj UbWŴPBi aVYf CZ7U` `g% q

PYXYZPHYghYXoPHYghAY Zcc. Ph\YPBi aVYf CZ7U` `gq
PYXYZPHYghYXoPHYghAY Zcc. Ph\YPBi aVYf CZ7U` `gq
PYXYZPHYghYXoPHYghAY Zcc. Ph\YPBi aVYf CZ7U` `gq

PaYUb] b[PHYghYX

H\]gh]a Y h\Y Wti bhYf [Yhg i dXUHŴg UbX k Y Xcb hgYY]bhYfZYfYbWŴ]b h\Y fYgi `h]b[PHYghYX a UŴc.
a UŴc.!2 Zcc.'

< YfY]g U gca Yk \ Uhg]`mYI Ua d`Y cZYI dUbXYX Wti dUf]gcb.

PXYZPYI dUbXYXXc] ZY` gY. % &.' . (i
oP] aaYX] UhYUgg] [baYbhPYXYZPhYadUo. %q
P] aaYX] UhYUgg] [baYbhPYXYZPhYadVo. &q
P] ZI PhYadUPhYadV
P] aaYX] UhYUgg] [baYbhPXYZPbYI ho.' q
PY` gY
P] aaYX] UhYUgg] [baYbhPXYZPbYI ho. (q
PZ]
PbYI hq

PYXYZPHYghYX
ofIPYI dUbXYXXc] ZY` gYoUVWtoXYZqomŴgqobcdq#i
PYI dUbXYXXc] ZY` gYoUVWtoUVWtoomŴgqobcdqŁq

PaYUb] b[PHYghYX

≠h[]j Yg.

a UŴc.!2 fbcd#mYgŁ

5 j Uf]Ubh]g.

PXYZPYI dUbXYXXc] ZY` gY. % &.' . (i
oP] aaYX] UhYUgg] [bYXo
PYXYZPhYadUo. %q
PYXYZPhYadVo. &q
q
P] ZI PhYadUPhYadV
P] aaYX] UhYUgg] [baYbhPXYZPbYI ho.' q
PY` gY
P] aaYX] UhYUgg] [baYbhPXYZPbYI ho. (q



PZ]
PbYI hq

H\Y dchg]V`Y Yffcf a YggU[Yg UfY h\Y gUa Y Ug i g]b[Ugg][ba Ybhg]b dfYUa V`Yg cZU`][ba Ybhg UbX
UZhYf h\Y PUWWh bh Wta a UbX" H\Y gi ddcfhYX Ugg][ba Ybhg UfY h\Y gc W`YX dfY I YX Wta a UbXg
fYI WdhVcl Ugg][ba Ybhgt"

) "*" - P] [bcfYdUfg

H\]g df]a]hj Y]g`_Y P] [bcfYgdUWg Vi hU`gc g_dg dUfU[fUd\ YbX]b[Wta a UbXg fbcfa U`mPdUf
UbX Ya dhm`]bYgt"

) "*" "%\$ PZi hi fYYI dUbXž PZi hi fYYI dUbX] gž PZi hi fYYI dUbX] gUd

H\YgY Wta a UbXg UfY i gYX Ug.

PZi hi fYYI dUbXPgcaYhc_YbPk\YbZci bXPk\YbbchZci bX

K \Yb h\YfY]g bc a UhW UbX U gdUW k Ug [cVV`YX U gdUW k]` VY di hVUW_" H\Y]g j Uf]Ubh
XcYgb hXc hUhk \]`Y h\Y]gUd Yj Yb g_dg PdUf gž H\YgY W UfUWYfg ghUbX Zcf][bcfYgdUWg UbX
][bcfYgdUWgUbXdUfg "

) "*" "%% PUZhYf[fci dYX

H\YfY]g U bYk YI dYf]a YbHU`ZYUhi fY hUhWUb]b`YWha i `h]d`Y hc_Ybg hc UZhYf h\Y [fci d YbXg" 5b
YI Ua d`Y XYa cbghfUhY]hg i gY.

o
PUZhYf[fci d 5 PUZhYf[fci d 6 PUZhYf[fci d 7
hYgh % . q

o
PUZhYf[fci dYXoK\Uh WtaYg bYI h %q
PUZhYf[fci dYXoK\Uh WtaYg bYI h &q
PUZhYf[fci dYXoK\Uh WtaYg bYI h ' q
hYgh & . q

o
PUZhYf[fci d 5 PUZhYf[fci dYXoK\Uh WtaYg bYI h %q
PUZhYf[fci d 6 PUZhYf[fci dYXoK\Uh WtaYg bYI h &q
PUZhYf[fci d 7 PUZhYf[fci dYXoK\Uh WtaYg bYI h ' q
hYgh ' . q

o
PUZhYf[fci dYXoK\Uh WtaYg bYI h %q PUZhYf[fci d 5
PUZhYf[fci dYXoK\Uh WtaYg bYI h &q PUZhYf[fci d 6
PUZhYf[fci dYXoK\Uh WtaYg bYI h ' q PUZhYf[fci d 7



hYgh (. q

H\]g []j Yg.

hYgh%. 567

hYgh& . K \UhWta Yg bYI h%K \UhWta Yg bYI h&K \UhWta Yg bYI h'

hYgh' . 5K \UhWta Yg bYI h%6K \UhWta Yg bYI h&7K \UhWta Yg bYI h'

hYgh(. K \UhWta Yg bYI h%5K \UhWta Yg bYI h&6K \UhWta Yg bYI h' 7

) "+ 7cbX]h]cbg

) "+ "% P] ZUVgbi a UbX P] ZUVgX] a

H\YfY UfY Hk c hYghg h\Uhk Y hcc_ Zfca D8: H9L.

P] ZUVgbi a !%\$ 1 %\$

h\Y gUaY bi aVYf

PZ]

P] ZUVgX] a !%\$dh 1 %\$dh

h\Y gUaY X] aYbg] cb

PZ]

H\]g []j Yg

h\Y gUaY bi aVYf h\Y gUaY X] aYbg] cb

) "+ "& P] ZWadbi aZ P] ZWadX] aZ P] Zbi aj U` ž P] ZX] aj U` ž P] ZW_ bi a UbX
P] ZW_X] a

B Yk UfY h\Y cbYg h\UhWta dUfY Hk c bi a VYfg cf X]a Ybg]cbg.

P] ZWadbi a) , `Ygg Pcf Yei U` PY` gY acfY PZ]

P] ZWadbi a)) `Ygg Pcf Yei U` PY` gY acfY PZ]

P] ZWadbi a ,) `Ygg Pcf Yei U` PY` gY acfY PZ]

`Ygg Yei U` acfY

UbX

P] ZWadX] a) dh , dh `Ygg Pcf Yei U` PY` gY acfY PZ]

P] ZWadX] a) dh) dh `Ygg Pcf Yei U` PY` gY acfY PZ]

P] ZWadX] a , dh) dh `Ygg Pcf Yei U` PY` gY acfY PZ]

`Ygg Yei U` acfY

H\YfY UfY U`gc gca Y bi a VYf UbX X]a Ybg]cb hYghg" 5`` Zci f YI dcgY h\Y PY` gY VfUbW k \Yb h\YfY
]g Ub YffcfZ Vi hHk c U`gc fYdcfh]Z h\Y bi a VYf]g `YggZ Yei U` cf a cfY h\Ub nYfc"

P] Zbi aj U` !%&' Pcf 0 Pcf 1 Pcf 2 Pcf ` PY` gY 3 PZ]



P] Zbi aj U` \$ Pc f 0 Pc f 1 Pc f 2 Pc f ° PY` gY 3 PZ]
P] Zbi aj U` %&' Pc f 0 Pc f 1 Pc f 2 Pc f ° PY` gY 3 PZ]
P] Zbi aj U` UVW Pc f 0 Pc f 1 Pc f 2 Pc f ° PY` gY 3 PZ]

P] ZX] aj U` ! %&' dh Pc f 0 Pc f 1 Pc f 2 Pc f ° PY` gY 3 PZ]
P] ZX] aj U` \$dh Pc f 0 Pc f 1 Pc f 2 Pc f ° PY` gY 3 PZ]
P] ZX] aj U` %&' dh Pc f 0 Pc f 1 Pc f 2 Pc f ° PY` gY 3 PZ]
P] ZX] aj U` UVWdh Pc f 0 Pc f 1 Pc f 2 Pc f ° PY` gY 3 PZ]

O 1 2 °

O 1 2 °

P] ZW\ _bi a ! %&' Pc f c _Um PY` gY VUX PZ]
P] ZW\ _bi a \$ Pc f c _Um PY` gY VUX PZ]
P] ZW\ _bi a %&' Pc f c _Um PY` gY VUX PZ]
P] ZW\ _bi a UVW Pc f c _Um PY` gY VUX PZ]

P] ZW\ _X] a ! %&' dh Pc f c _Um PY` gY VUX PZ]
P] ZW\ _X] a \$dh Pc f c _Um PY` gY VUX PZ]
P] ZW\ _X] a %&' dh Pc f c _Um PY` gY VUX PZ]
P] ZW\ _X] a UVWdh Pc f c _Um PY` gY VUX PZ]

c _Um c _Um c _Um VUX

c _Um c _Um c _Um VUX

) "+" P] ZaUh\ghm`Y UbX P] ZaUh\dUf UaYhYf

H\YgY hk c UfY j Uf]Ubhg cb P] ZWUgY k \YfY h\Y fghcbY cdYfUHYgk]h\ j U`i Yg]b fUb[]b[Zfca nYfc fK]gd`UmghmYk hc gYj Yb fWUa dYX gW]dhgW]dhghmYk UbX h\Y gYWcbX cbY WUb \Uj Y h\fYY j U`i Yg. U dUfUa YHYf]g nYfcZ \Ug U j U`i Y cf]g i bgYh" H\Y P] ZaUh\dUf UaYhYf df]a]hj Y HU_Yg U dfcdYf dUfUa YHYf bUa Y UbX U j U`X ghmY]XYbh] Yf fUdf]a]hj Y]XYbh] Yf cf bi a VYfL" H\Y P] ZaUh\ghm`Y df]a]hj Y]g Yei]j U`Ybh hc P] ZWUgY PaUh\ghm`Y"

) "+"(P] ZYadhm

H\]g df]a]hj Y hYghg Zcf h\Y Zc`ck]b[hc_Yb fWcbhf` gYei YbWk\Uj]b[bc WcbhYbh" 5ggi a]b[h\Uh PYadhm]g]bXYX Ya dnm h\Y Zc`ck]b[hk c UfY Yei]j U`Ybh

P] ZYadhmPk\UhYj Yf
P] ZI Pk\UhYj YfPYadhm

H\YfY]g bc fYU` dYfZcfa UbW [U]b \YfYz]hg a cfY cbY cZH\YgY YI hYbg]cbg h\Uh`YUX hc `Ygg Wi hYf]b hfUW]b["

) "+") P] ZVcc`YUb

H\]g df]a]hj Y hYghg Zcf bcb!nYfcZgc h\Y bYI hj Uf]Ubhg UfY g]a]`Uf



P] ZWUgY O] bhY[Yf 2" : " PY` gY " H" PZ]
Pi b` YggP] ZWUgY O] bhY[Yf 2" H" PY` gY " : " PZ]
P] ZVcc` YUbO] bhY[Yf 2" H" PY` gY " : " PZ]

) "+"* P] Zhc_ UbX P] ZWghc_

7ca dUf]b[hc_Ybg UbX a UWfcg WUb VY XcbY k]h\ P] ZI " Hk c YI hfU hYgh UfY dfcj]XYX]b
@ 5A 9H5HgL.

PXYZP567oUUVWq PXYZP89: oXYZq PXYZPDEFoUUVWq PbYkhc_gPLMN PLMN oUUVWq

P] Zhc_oUUVWqoXYZqPfY` UI flgUaYŁ PY` gY OX] ZZYfYbhQ PZ]
P] Zhc_oUUVWqoUUVWqPfY` UI OgUaYQ PY` gY fIX] ZZYfYbhŁ PZ]
P] Zhc_PLMN oUUVWqPfY` UI OgUaYQ PY` gY fIX] ZZYfYbhŁ PZ]

P] ZWghc_P567 P89: PfY` UI flgUaYŁ PY` gY OX] ZZYfYbhQ PZ]
P] ZWghc_P567 PDEFPfY` UI OgUaYQ PY` gY fIX] ZZYfYbhŁ PZ]
P] ZWghc_oUUVWqP567PfY` UI OgUaYQ PY` gY fIX] ZZYfYbhŁ PZ]

OX] ZZYfYbhQOgUaYQOgUaYQ
OX] ZZYfYbhQOgUaYQOgUaYQ

Mci WUb WXYW_]Z U a UWfc]g XY bYX Ug dfchYWhYX k]h\ P] ZdfchYWhYX k \]Y Zfcnyb a UWfcg WUb
VY hYghYX k]h\ P] ZZfcnyb" 5 dfcj]g]cbU` P] Zi gYf WAX hYghg k]` WXYW_]Z U Wta a UbX]g XY bYX Uh
h\Y i gYf `Yj Y` fUbX h\]g cbY a][\hYj c`j YŁ"

) "+"+ P] ZWcbX] h] cb

H\]g]g Ugca Yk \UhgdYVWU` cbY" K \Yb mci k f]hY a UWfcg WcbX]h]cbg bYYX hc VY dfcdYf`mVU`UbWYX
]b cfXYf hc `Yh HgL g ZUgh VfUbVX g_]dd]b[k cf_ k Y`" H\]g bYk df]a]h] Y]g VUg]WU`mU bc!!cd
U[[YX Ug U WcbX]h]cb gc h\ Uh h\Y gWbbYf WUb fYWŁ[b]nY]h Ug Ub]ZhYgh" < ck Yj Yfż k \Yb U fYU`
hYgh hU_Yg d`UW h\Y k cf_]g XcbY Vmk \Uh Zc`ck gż]b h\Y bYI hYI Ua d`Y PgcaYh\] b["

Pi bYI dUbXYXPXYZPgcaYh\] b[. % &i
oPYXYZPhYadUo. %qi
PYXYZPhYadVo. &q
P] ZI PhYadUPhYadVq

P] ZWcbX] h] cbPgcaYh\] b[oUqoVqi
P] ZWcbX] h] cbPgcaYh\] b[oUqoUqi
hfi Y %
PY` gY
ZU` gY %
PZ]
PY` gY
P] ZWcbX] h] cbPgcaYh\] b[oUqoUqi
hfi Y &



PY` gY
ZU` gY &
PZ]

PZ]

=Zmci UfY ZJa]`Uf k]h\ A 9H5DCGHZ h\]g]g U V]h`_]Y j Uf XYZ k \YfY h\Y a UWf c \Ug U fYh fb j U`i Y"
< YfY h\Y fYh fb j U`i Y]g U hYgh"

9I dYf]a Ybhg k]h\ gca Yh\]b[P] ZXYZ UWf U`mk cf_YX c_ Vi hk YfY fY`YWX VYWli gY]b h\Y YbX]h
[Uj Y bc UXj UbhU[Y gc h\]g [YbYf]WcbY \Ug hc Xc" H\Y P] ZWbX] h] cb hYgh]g VUg]WU`m]g U bc!cd
YI Wdh k \Yb VfUbWYg UfY g_]ddYX" < ck Yj Yfz k \Yb U hYgh]g YI dYWXZ h\Y gWbbYf [cVV`Yg]h
UbX h\Y bYI hYghfYgi `h]g i gYX" < YfY]g Ub ch\Yf YI Ua d`Y.

PXYZPanhYgh. %
oP] ZUVgX] a. %2\$dhPY` gY
PYI dUbXUZhYf Pi b` Ygg
PZ]
P] Zhfi Yq

P] ZWbX] h] cbPanhYgho%\$dhqPfY` UI bcb! nYf c PY` gY nYf c PZ]
P] ZWbX] h] cbPanhYgh o\$dhqPfY` UI bcb! nYf c PY` gY nYf c PZ]

bcb! nYf c nYf c

H\Y `UghYI dUbg]cb]b U a UWf c `_]Y PanhYgh \Ug hc VY U WbX]h]cb UbX \YfY k Y i gY Pi b` Ygg hc
bY[UH\ h\Y fYgi `h"

) "+", PcfY` gY

Gca Yh]a Yg mci \Uj Y gi Wgg] Y hYghg h\Uhž k \Yb `U]X ci h]b h\Y gci fW `YUX hc XYYd hfYYg" H\Y
P] ZWUgY hYgh]g Ub YI Wdh]cb" 9I dYf]a Ybhg k]h\ P] ZWUgYI k cf_YX ci h bY Vi hYj Ybhi U`mk YfY
fY`YWX VYWli gY k Y \Uj Y a Ubm hYghg gc]h k ci `X UXX U `ch" 5g @! 5A 9H5H9L dYfa]hYX a cfY
YI dYf]a Ybhgž Yj Ybhi U`m Ub U`hYfbUhj Y k Ug Wc_YX i dž cbY h\Uh \Ug gca Y fYghf]W]cbg Vi h]g
fY`Uhj Y `][\hk Y][\h" =h[cYg `_]Y h\]g.

P] Zbi aPWci bh\$0%\$
` Ygg
PcfY` gYP] Zbi aPWci bh\$1%\$
Yei U`
PY` gY
acfY
PZ]

H\Y PcfY` gY \Ug hc VY Zc`ck YX VmcbY cZH\Y]ZHghWca a UbXgžYI WdhP] ZWbX] h] cbžUbX h\YfY
WUb VY Ub Pi b` Ygg]b ZfcbhcZgi W U Wca a UbX" H\YgY fYghf]W]cbg a U_Y]h dgg]V`Y hc ghUm]b
h\Y W ffYbh WbX]h]cb ffYUX. Uh h\Y gUa Y `Yj YŁ" =Zmci bYYX gca Yh\]b[a cfY Wca d`YI ž i glb[
PcfY` gY]g dfcVUV`mi bk]gY Ubnk Unł =b WUgY mci k cbXYf UVci h dYfZcfa UbWž h\YfY]g U `]hY
a cfY WYW_]b[bYYXYX k \Yb g_]dd]b[VfUbWYg Vi h\UhWUb VY bY[`YWX" H\YfY]g gca Y [U]b



) \$ 6 Ug]WH9L Yb\UbWfa Ybhg

Xi Y hc ghUm]b[Uh h\Y gUa Y`Yj Y` Vi h h\Uh]g cb`ma YUgi fUV`Y k\Yb mci fi bg hYbg cZa]``cbg cZ
Wta d`YI hYghg UbX]b h\Uh WUgY]h]g j Yfm`]_Y`mhX fck b]b h\Y fYU` UW]cb" hg U Wtbj Yb]YbW
a YWU b]ga ž]b h\Y gYbgY h\Uh]h WU b a U_Y mci f WtXY`cc_ U V]hYUg]Yf hc Zc`ck"

H\YfY]g U b]W g]XY Y` YW hcz h]g a YWU b]ga " K \Yb mci XY bY.

PXYZPei] hWtbX] h] cboPcfY` gYP] ZZU` gYq

mci WU b Xc h]g.

P] Zbi aPWci bh\$0%\$

`Ygg

PcfY` gYP] Zbi aPWci bh\$1%\$

Yei U`

Pei] hWtbX] h] cb

] bXYXX

PY` gY

acfY

PZ]

CZWci fgY]h]g cb`mi gYZ` Uh h\Y f][\h`Yj Y`žgc mci a][\hYbX i d k]h\ WUgYg`]_Y

P] Zbi aPWci bh\$0%\$

`Ygg

PcfY` gYP] Zbi aPWci bh\$1%\$

Yei U`

P] Zbi aPWci bh&1' \$

PYI dUbXUZ hYfPei] hWtbX] h] cb

PZ]

] bXYXX

PY` gY

acfY

PZ]

) "+- P] ZdfchYWhYXž PZf cnYbž P] ZZf cnYb UbX P] Zi gYf WtX

H\YgY WXYW_Yfg XYU` k]h\ Wtbhfc` gYei YbWg" Mci WU b WXYW_]Z U Wta a UbX]g U dfchYWhYX cbYž
h\Uh]gžXY bYX k]h\ h\Y PdfchYWhYX dfY I " 5 Wta a UbX]g Zf cnYb k \Yb]h\ Ug VYYb XY bYX k]h\
h\Y PZf cnYb dfY I " 6Yk UfY. cb`ma UWcg WU b VY Zf cnYb" 5 i gYf Wta a UbX]g U Wta a UbX h\Uh]g
bchdUfhcz h\Y dfYXY bYX gYhcZWta a UbXg" H\]g]g Ub YI dYf]a Yb hU` Wta a UbX"

) ", 6cl Ygž fi`Yg UbX`YUXYfg

) ", "% Pci hdi hVcl

H\]g]bhY[Yf dUfUa YhYf U`ck g mci hc U`hYf h\Y bi a VYf cz h\Y Vcl h\Uh k]` VY i gYX hc ghcfY h\Y
dU[Y gYbh hc h\Y ci hdi h fci h]bY" hg XYZUi`hj U i Y]g &) ž UbX h\Y UWVdhUV`Y fUb[Y]g Zfca \$ hc
(*))')"



Pci hdi hVcl 1 %&' ()

) ", "& Pj dUW_ž P\ dUW_ UbX PhdUW_

H\YgY h\fYY df]a]hj Yg UfY `]_Y Pj Vcl ž P\ Vcl UbX Pj hcd Vi hXcb hUdd`mh\Y fY`UhYX VW`VUW_g"

) ", "' Pj gd`] h

H\Y Pj gd`] h df]a]hj Y \ Ug hc VY Zc`ck YX VmU gdYW_ VW]cb cZH\Y fYei]fYX \Y][\h" 5g U`hYfbUh]j Y Zcf h\Y hc _Ymk cfX mci Wlb i gY i dhc hc [Yh U gd`]h cZH\Y []j Yb g]nY Vi h fYgi `h \ Ug h\Y bUhi fU` X]a Ybg]cbg h\Yb"

) ", "(=a U[Yg UbX fYi gYX Vcl cV`YWhg

=b cf][]bU` Hg_L]a U[Y gi ddcfh]g XYU`hk]h j]U gdYW_U`g" =hg bchU bUh]j Y ZYUhi fY cZH\Y Yb[]bY" 5` h\UhHg_L VWfYg UVci h]g X]a Ybg]cbgžgc]b dfUW]VW h\Uha YUbh i g]b[U Vcl k]h _bck b X]a Ybg]cbg h\Uh k fUdg U gdYW_U` h\Uh]bghfi VWg h\Y VUW_YbX hc]bWi XY Ub]a U[Y" H\Y k fUdd]b[]g bYYXYX VYW]i gY U gdYW_U`]hgY`Z]g U k \Uh]h UbX Ug gi V\ \ Ug bc X]a Ybg]cbg"

=b D8: Hg_L U gdYW_U` k \Uh]h Zcf]a U[Yg k Ug]bhf cXi VWX UbX h\Uh cbY \ Ug X]a Ybg]cbg" 5g U Wcb! gYei YbVWž]b gYj YfU` d`UWg k \YfY h\Y Yb[]bY XYU`g k]h h\Y X]a Ybg]cbg cZ bcXYgž]h bck \ Ug hc V\YW_ h\Y XYhU`]g cZ k \Uh]hg" 6m]b\Yf]h]b[VcXY Zfca D8: Hg_L ž h\Y @ 5Hg_L Yb[]bY U`gc \UX h\Uh dfcdYfhm` < ck Yj Yfž Uh gca Y dc]bh h]g UddfcUW k Ug UVUbXcbYX UbX U a cfY bUhi fU` hf]W_ k Ug i gYX.]a U[Yg fUbX Vcl fYgci fVWgk VYW]a Y U gdYW_U` _]bX cZfi `Ygž UbX Ug fi `Yg U`fYUXm\Uj Y X]a Ybg]cbgž h\Y VcXY Wci `X VY g]a d`] YX"

K \Yb X]fYW]cb bcXYg UbX `cW`dUf bcXYg U`gc VYW]a Y fghWUgg bcXYgž k \Uh]hg U[U]b VYW]a Y ħ gh h\Uh bcXYg fYdfYgYbh]b[k \Uh]j Yf mci k Ubhž Vi h k]h ci h X]a Ybg]cbgž UbX h\YfYZcfY h\Ym Wci `X U[U]b VY][bcfYX k \Yb X]a Ybg]cbg a U`hYfYX" 5bXž VYW]i gY]a U[Yg k YfY X]g[i]gYX Ug fi `Ygž Ug a Ybh]cbYXž h\Yf X]a Ybg]cbg Ui hca Uh]W]`mk YfY hU_Yb]bhc UWWci bh" H\]g gYdYfUh]cb VYhk Yyb ZfcbhUbX VUW_YbX WYUbYX i d h\Y VcXY VUgY U`fYUXmei]hY U V]h"

=b @ 5A 9H5Hg_L k Y gh]` \Uj Y h\Y]a U[Y gdYW_ Wgi VhmdYg Zcf fi `Ygž Vi h h\Y Yb[]bY bYj Yf `cc_g Uh gi VhmdYg cZfi `Yg" H\Uh k Ug i d hc h\Y VUW_YbX" H\]g a Yubg h\Uh]a U[Y gi ddcfh]g bchdfYgYbh]b @ 5A 9H5Hg_L " K \Yb Ub]a U[Y gdYW_ VW]cb k Ug dUfgYX h\Y gdYW_U` dfcdYfh]Ygž`]_Y h\Y `YbUa Yž cf UXX]h]cbU` U`hf]Vi hYgž k YfY ghcfYX]b h\Y VUW_YbX UbX U` h\Uh @ 5Hg_L XcYg]g fY[]ghYf]b[U fYZYfYbVW hc Ub]a U[Y g gdYW_ VW]cb]b h\Y fi `Y bcXY" 6i hž \Uj]b[bc VUW_YbX a Yubg bch]b[]g ghcfYXž k \V\]b hi fb k ci `X a U_Y h\Y]a U[Y]bWi g]cb df]a]hj Yg _]bX cZk Y]fX"

H\YfYZcfY mci bYYX hc fYU`nY h\Uh WcbhfUfmhc @ 5Hg_L ž]b @ 5A 9H5Hg_L gi ddcfh Zcf]a U[Yg UbX Vcl fYi gY]g bchVi]h]b` < ck Yj Yfž k Y Wlb Uggi a Y h\UhUb]a d`Ya YbhUh]cb i gYg fi `Yg]b U g]a]`Uf ZUg\]cb Ug @ 5Hg_L XcYg" Gcž mci Wlb gh]` Wcbg]XYf]a U[Yg UbX Vcl fYi gY hc VY WcfY WcbWdhg" < YfY k Y ħ gha Ybh]cb h\Y df]a]hj Yg h\Uh @ 5Hg_L dfcj]XYg" H\YmUfY bchUj U]`UV`Y]b h\Y Yb[]bY Vi hWlb cZ Wci fgY VY]a d`Ya YbhYX]b @ 5"

PgUj YVcl fYgci fW
PgUj Y] aU[YfYgci fW

glUj Y h\Y Vcl Ug Ub cV`YVh hc VY]bWi XYX `UhYf
glUj Y h\Y]a U[Y Ug Ub cV`YVh hc VY]bWi XYX `UhYf



) & 6 Ug]WHg_L Yb\UbW]a Ybhg

Pi gYVcl fYgci fWw]bWi XY h\Y gUj YX Vcl cV^YVh\YfY fV[m]bXYI Ł
Pi gY] aU[YfYgci fWw]bWi XY h\Y gUj YX]a U[Y cV^YVh\YfY fV[m]bXYI Ł
P` UghgUj YXVcl fYgci fWw] bXYI h\Y]bXYI cZh\Y `UghgUj YX Vcl cV^YVh
P` UghgUj YX] aU[YfYgci fWw] bXYI h\Y]bXYI cZh\Y `UghgUj YX]a U[Y cV^YVh
P` UghgUj YX] aU[YfYgci fWwdU[Yg h\Y bi a VYf cZdU[Yg]b h\Y `UghgUj YX]a U[Y cV^YVh

5b]a d`Ya YbhUh]cb dfcVUV`m g\ci `X UWWdh h\Y i gi U` cdh]cbU` X]a Ybg]cb dUfUa YhYfg Zcf
Pi gY" " " fYgci fWw]b h\Y gUa Y Zcfa UhUg Zcf fi `Yg" K]h\]a U[Ygz h\YgY X]a Ybg]cbg UfY h\Yb i gYX
]bghYUX cZh\Y cbYg []j Yb hc Pi gY] aU[YfYgci fWw Vi h h\Y cf][]bU` X]a Ybg]cbg UfY bchcj Yfk f]h
hYbžgc h\UhU Pi gY] aU[YfYgci fWw k]h\ci hX]a Ybg]cbg gh]` dfcj]XYg h\Y]a U[Y k]h\ X]a Ybg]cbg
XY bYX VmPgUj Y] aU[YfYgci fWw" H\YgY cdh]cbU` dUfUa YhYfg UfY bch]a d`Ya YbhYX Zcf PgUj Y!
Vcl fYgci fWw"

Pi gY] aU[YfYgci fWw k] Xh\ &\$aa \Y] [\h %\$aa XYdh\)aa P` UghgUj YX] aU[YfYgci fWw] bXYI
Pi gYVcl fYgci fWw k] Xh\ &\$aa \Y] [\h %\$aa XYdh\)aa P` UghgUj YXVcl fYgci fWw] bXYI

9I Ua d`Ygcf cdh]cbU` Ybhf]Yg UfY Uhhf UbX fYgci fWwg h\UhUWWdhU hc_Yb`]ghž UbX h\Y hmdY _Ym
K \Yb gYhhc bcb!nYfc h\Y #HmdY Ybhf]m]g ca]hYX" 5 j U`i Y cZ%cf` gh]` k f]hYg U #66cl žk \]Y &cf
' k]` k f]hY U #AUhf] I " 6i hž Ug gU]X. h\]g]g Ybh]fY`mi d hc h\Y VUW_YbX" ; YbYf]Wa UWfc dUW_U[Yg
fi]_Y h] _nŁ WUb i gY h\YgY Uggi a YX df]a]hj Yg gc cbY WUb VYghdfcj]XY h\Ya " -h]g dfcVUV`nŁ Zcf
\]ghcf]WfYUgcbgž h\Y cb`ma cfY cf `Ygg ghUbXUfX]nYX]a U[Y]bWi g]cb]bhYfZUW cbY WUb YI dYVh
k cf_]b U` a UWfc dUW_U[Yg"

) ", ") P\ dUW_ž Pj dUW_ UbX PhdUW_

H\YgY h\fYY df]a]hj Yg UfY h\Y Yei]j U`Ybhg cZP\Vcl ž Pj Vcl UbX Pj hcd Vi h h\YmXcb hhf][[Yf h\Y
dUW_U[]b[fY`UhYX WU`VUW_g" CZWŁi fgY cbY bYj Yf _bck]Z WŁbhYbh bYXXg U hfYUha Ybhgc i g]b[
h\Ya g\ci `X VY XcbY k]h\ WUfY"

) ", "* Pbc\fi`Y UbX Pbcj fi`Y

6YWLi gY]bhfci Xi W]b[U bYk _Ynk cfX WUb WLi gY]bWŁa dUh]V]`]hjYgž h\c bYk df]a]hj Yg k YfY]bhfci!
Xi WYX. Pbc\fi`Y UbX Pbcj fi`Y" H\YgY WUb VY i gYX hc fYgYfj Y gdUW" H\]g]g cZhYb a cfY Y]WYbh
h\Ub WYUh]b[Ub Ya dhmVcl k]h\ ZU_Y X]a Ybg]cbg"

) ", "+ P[`YUXYfg

H\]g hmdY cZ`YUXYfg]g UbWŁcfYX hc h\Y cf][]b cZh\Y Vcl hc VY g\]ddYX ci h" Gc h\YmUfY`]_Y bcfa U`
P` YUXYfg]b h\Uh h\YmU`][b b]WŁ`nŁ YI WŁdh h\Uh h\Y U`][ba Ybh]g VUgYX cb h\Y `Uf[YghYbWcg]b[
Vcl]bghYUX cZh\Y ga U`Ygh" H\Y [ghfYggYg h\]g [`cVU` bUhi fY"

) "- @Ub[i U[Yg

) "- "% P\md\YbUh] cba] b

H\]g df]a]hj Y WUb VY i gYX hc gYh h\Y a]b]a U` k cfX `Yb[h\žgc gYh]b[]h hc U j U`i Y cZ 5 a YUbg
h\Uhcb`mk cfXgcZ* WŁUfUWYfg UbX a cfY k]` VY \md\YbUhYXžcZWŁi fgY k]h\]b h\Y WŁbghfU]bhgcZ



h\Y P`YZh\md\Yba] b UbX Pf] [\h\md\Yba] b j U'i Yg fUg ghcfYX]b h\Y [`md\ bcXYE" H\]g df]a]hj] Y UWWdHg U bi a VYf UbX ghcfYg h\Y j U'i Y k]h\ h\Y `Ub[i U[Y"

) "- "& PVci bXUf mŽ PbcVci bXUf mŽ Pdf chf i g] cbVci bXUf mUb X Pkcf XVci bXUf m

H\Y PbcVci bXUf mVta a UbX]g i gYX hc]b YVh U k \Uhj]hbcXY Vi hbck]b YVh U bcfa U` bcXY k]h\ hmdY Vci bXUf mUbX gi VhmdY \$" =b UXX]h]cb mci WUb gUm

I PVci bXUf m %&' PfY` Ul m

H\]g \Ug h\Y gUa Y Y YVh Vi h\Y gi VhmdY]g bck %UbX h\Y j U'i Y %&']g ghcfYX" H\Y hfUX]h]cbU`][! Uhi fY Vi]XYf gh]` gYg h\]g Ug U WUbWV` Vci bXUfmX]fYVh]j Y Vi hUh\Y @ 5 YbX mci WUb]a d`Ya Ybh X] YfYbhVY\Uj]ci f" H\Y UXXYX VYbY hcZdUgg]b[h\]g j U'i Y]g U g]XY Y YVh cZ h\Y [YbYfU`]nUh]cb" H\Y gi VhmdYg & UbX ` UfY i gYX hc Vcbhfc` dfchfi g]cb UbX k cfX Vci bXUf]Yg]b \md\YbUh]cb UbX \Uj Y fY`UhYX df]a]hj] Yg"

) "%\$ 7cbhfc` UbX XYVi [[]b[

) "%\$"% HfUW]b[

=Z Phf UW] b[cb`] bY]g `Uf[Yf h\Ub &ž h\Y bcXY `]ghX]gd`Umk]` U`gc df]bh h\Y bcXY bi a VYf cZ h\Y bcXYg"

) "%\$"& P` UghbcXYhmdYž P` UghbcXYgi VhmdYž PW f fYbh] ZhmdY UbX P] bhYf bU` WcXYgacXY"

H\Y !HgL Wta a UbX P` UghbcXYhmdY]g `ja]hYX hc gca Y bcXYg" K \Yb h\Y dUfUa YhYf P] bhYf bU` ! WcXYgacXY]g gYh hc U bcb!nYfc j U'i Y h\Y bcfa U` f]bhYfbU`mi gYXE bi a VYfg UfY fYdcfhYX" H\Y gUa Y]g Hfi Y Zcf PW f fYbh] ZhmdYž Ug k Y \Uj Y a cfY WcbX]h]cbU`g UbX U`gc i gY U X] YfYbhcfXYf" H\Y P` UghbcXYgi VhmdY]g U Vcbi g"

) "%% :]`Yg

) "%%"% :]`Y gmb hUl

@ 5A 9H5HgL k]` UWWdhu VfUWXX Uf[i a YbhUg U `Y bUa Y.

P] bdi h`od` U] bq

PcdYb] b \$`od` U] bq

H\]g U`ck g Zcf Ya VYXXYX gdUWgž k]h\ci h\Y bYYX Zcf Xci V`Y ei chYg" A UWc Yl dUbg]cb HJ_Yg d`UW]bg]XY h\Y Uf[i a Ybh"

H\Y Phf UW] b[Zcbhg df]a]hj] Y h\Uh\Ug VYYb]b\Yf]hYX Zfca D8: HgL \Ug VYYb UXUdhYX hc gi ddcfh j Uf]Ubhg]b fYdcfh]b[h\Y Zcbh" H\Y fYUgcb Zcf h\]g Yl hYbg]cb]g h\Uh U WgbUa Y bchU`k Umg a U_Yg gYbgY" H\Y nYfc WUgY]g h\Y XYZUi `h"



\$	PZcc l m
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&	OVUf 2 l m
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) "%%"& K f]h]b[hc `Y

Mti WUb bck cdYb i dhc %&+ `Yg k]h\ PcdYbci h" K \Yb bc `Y]g cdYb k f]hYg k]` [c hc h\Y Wcbgc`Y UbX `c[" H\Y kf] hY fY`UhYX df]a]h] Yg \Uj Y hc VY]a d`Ya YbhYX Ug dUfhcZU VUW_YbX° 5g U WcbgYei YbW U gmgYa Wca a UbX]g bc `cb[Yf dcgg]V`Y Vi hcbY WUb i gY cg" YI YW hY hc Xc h\Y gUa Y"

) "%& A Uh\

K Y k]` Wcj Yf a Uh\ YI hYbg]cbg]b]hg ck b V\UdhYf VYWUi gY bchcb`mh\Y Zcbhgi VgmghYa UbX gdUW]b[a cXY` \Uj Y VYYb Yb\UbW\X fh\YfYVm]bhf cXi V]b[a UbmbYk df]a]h] Yg Ł Vi h U`gc VYWUi gY gca Y a cfY Wcbhf c` \Ug VYYb UXXYX hc YI]gh]b[Z bW]cbU`]m\ A i V\ cZ\h]g fY`UhYg hc h\Y X] YfYbh UddfcUW\Yg cZ hfUX]h]cbU` HgŁ Zcbhg UbX CD9B HMD9 a Uh"

) "%' : cbhg

@_Y a Uh\ ž k Y k]` Wcj Yf Zcbhg YI hYbg]cbg]b]hg ck b V\UdhYf" < YfY k Y gh]W_ hc a Ybh]cb]b[h\Uh `cUX]b[Zcbhg]g X] YfYbh]b @ 5A 9H5HgŁ " 5g]b @ 5HgŁ k Y \Uj Y h\Y YI hfU df]a]h] Yg PZcbh] X UbX PgYhZcbh] Xž Pbc`] [g UbX Pbc_Yf bgž UbX PbcgdUW\g" H\Y ch\Yf bYk df]a]h] Yg]b @ 5HgŁ \Uj Y VYYb XfcddYX"

) "%(8]fYW]cbg

) "%("% Hk c X]fYW]cbg

H\Y X]fYW]cbU` a cXY`]b @ 5A 9H5HgŁ]g U g]a d`] YX j Yfg]cb h\Y h\Y a cXY` i gYX]b @ 5HgŁ " ð ZUWž bcha i V\]g \UddYb]b[UhU`. k Y cb`mfY[]ghYf U W\Ub[Y]b X]fYW]cb"

) "%("& < ck]h k cf_g

H\Y UddfcUW\]g h\Uh k Y hfmh c a U_Y bcXY`]ghg VU`UbW\X Vi hU`gc hfmh c Uj c]X gca Y g]XY Y YW\g" K \Uh\UddYbg]g ei]hY]bhi]h] Y]Zk Y Zcf[YhUVci hgdUW\g fhi fbYX]bhc [`i YŁ Vi hY] Yb h\YfY k \Uh \UddYbg a U_Yg gYbgY]Z mci `cc_ Uh]h]b XYhU]" < ck Yj Yf h\Uh `c[]Wa U_Yg]b! [fci d gk]hW]b[_]bX cZ i gY`Ygg k \Yb bc dfcdYf`mbYghYX [fci d]b[]g i gYX. gk]hW]b[Zfca f][\h hc `YZh gYj YfU`



h]a Yg bYghYXž fYgi`hg]b gdUW]b[YbX]b[i d UZhYf YUW ch\Yf Xi Y hc bYghYX a]ffc f]b[" CZWēi fgY U gUbY a UWfc dUW_U[Y k]` a UbU[Y h\]g Zcf h\Y i gYf Vi h\YfY k Y UfY X]gW gg]b[h\Y`ck`Yj Y`]b^YWh]cb cZX]fYWh]cbU`]bZcfa Uh]cb"

H\]g]g k \Uh\UddYbg.

PhYI hX]fYWh]cb % bi f oPhYI hX]fYWh]cb \$ fi b PhYI hX]fYWh]cb % BI Fq bi f

H\]g VYWēa Yg ghYdk]gY.

]b^YWhYX. Odi g\ %Qbi f oOdi g\ \$Qfi b Odi g\ %QBI Fq bi f
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PhYI hX]fYWh]cb % bi f obi f PhYI hX]fYWh]cb \$ fi b PhYI hX]fYWh]cb % BI Fq bi f

VYWēa Yg.

]b^YWhYX. OŽHFHQbi f obi f OŽH@HQfi b OŽHFHQBI Fq bi f
VU` UbWYX. OŽHFHQbi f obi f OŽH@HQfi b O! H@HOOŽHFHQBI FO! HFHQq bi fO! HFHQ
fYgi`h . fi b ofi b FI Bfi b q fi b

Bckž]b h\Y Zc`ck]b[YI Ua d`Yg k UhW k \YfY k Y di h\Y VfUWYg.

PhYI hX]fYWh]cb % bi f ooPhYI hX]fYWh]cb \$ fi bq oPhYI hX]fYWh]cb % BI Fqq bi f

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Gc \ck Xc k Y XYU` k]h\ h\Y bYI h3

PXYZP` hf oPhYI hX]fYWh]cb \$PfY` Ul q
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fi b oPf h` bi f oP` hf fi b Pf h` BI F P` hf fi b Pf h` BI Fq bi f q
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K Y Wēi`X XY bY h\Y Hk c \Y`dYfg hc`cc_ VUW_ž d]W_ i d U g_]dž fYa cj Y]hUbX]b^YWh]hUZhYf h\Y X]f bcXY" 6i h\Uhk Umk Y`ccgY h\Y gi VhmdY]bZcfa Uh]cb h\UhZcf gca Y Udd`]VWh]cbg WUb VY \UbXmh c



VY_YdhUg!]g" H\]g]gk\mkY bck \UjY Uj Uf]UbhcZPhYI hX] fYWh] cb k \]W\]b^YWhg h\Y VU^UbW\X bcXY VYZcfY h\Y g_]d" ßghYUX cZh\Y dfYj]ci g XY b]h]cb k Y W\ub i gY.

PXYZP^ hf oP^] bYX] fYWh] cb \$PfY^ Ul q
PXYZPf h^ oP^] bYX] fYWh] cb %PfY^ Ul q

UbX h\]g h]a Y.

f i b oPf h^ b i f oP^ hf f i b Pf h^ B I F P^ hf f i b Pf h^ B I F q b i f q
f i b oP^ hf f i b oPf h^ b i f P^ hf F I B Pf h^ b i f P^ hf F I B q f i b q

Wta Yg ci hUg U dfcdYf^mgdUW\X.

f i b f i b F I B f i b F I B f i b f i b
f i b f i b f i b F I B f i b F I B f i b

5bnt\]b[a cfY Wta d^YI h\Uh h\]gž`_]Y Wta V]bUh]cb cZ g_]dg UbX dYbU^h]Ygž cf _Yfbgž g\ci `X VY \UbX^YX]b h\Y]bdi hcf a UWc dUW_U[Y VYW\i gY h\YfY]g bc k Umk Y W\ub dfYX]Wh h\Y YI dYW\YX VY\Uj]ci f" ß ZUWz h\Y P^] bYX] f]g 1 ghU Wcbj Yb]YbW\ YI hfU k \]W\ Wti `X U`gc \Uj Y VYYb]a d^Y! a YbhYX i g]b[bcXY`]ghdUfg]b["

) "%(" 7cbhfc`"]b[[`i Y k]h\ PVfYU_UZhYfX] facXY

; `i Y UZhYf U X]f bcXY]g][bcfYX]b h\Y `]bYVfYU_ XYW]g]cb Vi h mci W\ub VmdUgg h\Uh VmgYhh]b[PVfYU_UZhYfX] facXY hc %" H\Y Zc`ck]b[hUVY g\ck g h\Y X] YfYbW\ " K UhW\ mci f gdUW\g"

dfY oPhYI hX] fYWh] cb \$ III q dcgh	dfY III dcgh	dfY III dcgh
dfY oPhYI hX] fYWh] cb \$ III qdcgh	dfY III dcgh	dfY III dcgh
dfYo PhYI hX] fYWh] cb \$ III q dcgh	dfY III dcgh	dfY III dcgh
dfYo PhYI hX] fYWh] cb \$ III qdcgh	dfY III dcgh	dfY III dcgh
dfY o PhYI hX] fYWh] cb \$ III q dcgh	dfY III dcgh	dfY III dcgh
dfY oPhYI hX] fYWh] cb \$PfY^ Ul PgdUW\ III q dcgh	dfY III dcgh	dfY III dcgh





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* : c b hg

* "% =b h f c Xi W h] c b

C b`m h f U X] h] c b U` Z c b h g i d d c f h] g V i]`h] b ž U b n h] b[a c f Y b Y Y X g h c V Y] a d`Y a Y b h Y X] b @ 5" H \] g W ě b Z c f a g h c h Y @ 5 H ğ L d \] c g c d \ n ĩ K \ Y b m ĩ d U g g U Z c b h h c h Y Z f c b h Y b X c b`m h Y X] a Y b g] c b g a U h Y f ž U g h Y g Y U f Y i g Y X] b h m d Y g Y h] b[ž U b X c d h] c b U`m] [U h i f Y g U b X _ Y f b g k \ Y b m ĩ f Y`m c b h Y V i]`h] b Z c b h \ U b X`Y f" : c f a U h g c a Y Y i h f U X U h U] g b Y Y X Y X ž`_ Y] b Z c f a U h] c b U V c i h Y i h Y b g] V`Y g U b X b Y i h] b g] n Y [`m d \ g" M ĩ W ě b c Z W ě i f g Y d i h a c f Y] b Z c f a U h] c b] b m ĩ f @ 5 h U V`Y g V Y W ě i g Y k \ Y b g i V X U h U V`Y] g d U g g Y X h c H ğ L c b`m h U h k \ U h] g b Y Y X Y X] g `h Y f Y X Z f c a] h"

6 Y W ě i g Y h Y f Y] g b c V i]`h] b V U W _ Y b X ž j] f h i U` Z c b h] b Z c f a U h] c b] g b c h i g Y X" = Z m ĩ k U b h h c V Y W ě a d U h] V`Y m ĩ X V Y h Y f a U _ Y g i f Y h U h m ĩ f h U V`Y g U f Y c _ U n ě U b X] b h U h W ě g Y m ĩ W ě b V Y g h W ě b g i `h h Y @ 5 H ğ L a U b i U" : c f] b g h U b W ě ž d U f U a Y h Y f g] _ Y Y i h Y b X U f Y V U W _ Y b X f Y`U h Y X U b X h Y g h U b X U f X @ 5 H ğ L V U W _ Y b X g Y h g h Y g h U b X U f X \ Y f Y"

* "& 8 Y b] b[Z c b hg

5` H ğ L Z c b h g U f Y f Y d f Y g Y b h Y X h c @ 5 W ě X Y U g h U V`Y g ž U b X] b h Y f b U`m U g 7 g h f i W ě i f Y g" 5` _ Y m g] b h Y h U V`Y V Y`c k U f Y g U j Y X] b h Y] b h Y f b U` Z c b h g h f i W ě i f Y] Z h Y m U f Y d f Y g Y b h] b h Y h U V`Y d U g g Y X h c Z c b h" X Y Z] b Y" K \ Y b h Y W ě`V U W _] g g Y h k \] W X] g b Y Y X Y X Z c f P Z c b h h c k c f _ ž] h g ž b W h] c b [Y h g h Y b U a Y U b X g] n Y d U g g Y X ž U b X] h \ U g h c f Y h i f b U j U`X Z c b h] X Y b h] Y f f U d c g] h j Y b i a V Y f ě"

: c f h Y Y b[] b Y h c k c f _ k Y`ž h Y Z c`c k] b[] b Z c f a U h] c b \ U g h c V Y d f Y g Y b h U h h Y Z c b h`Y j Y`.

b U a Y	g h f] b[	a Y h f] W f i`Y ě b U a Y
W X U f U W h Y f g	h U V`Y	h Y X Y b Y X [`m d \ g c Z h] g Z c b h
X Y g] [b g] n Y	b i a V Y f	Y i d Y W h Y X g] n Y f K Y Z U i`h *))' * \$ 1 1 % \$ d h ě
Z c b h g	h U V`Y	`c W ě`m i g Y X Z c b h g
\ m d \ Y b W X U f	b i a V Y f	X Y Z U i`h H ğ L g P \ m d \ Y b W X U f
d U f U a Y h Y f g	\ U g \	X Y Z U i`h + d U f U a Y h Y f g ž U`n Y f c
g] n Y	b i a V Y f	h Y f Y e i] f Y X g W ě] b[f \ m X Y Z U i`h h Y g U a Y U g X Y g] [b g] n Y ě
g _ Y k W X U f	b i a V Y f	X Y Z U i`h H ğ L g P g _ Y k W X U f
g h f Y h W X	b i a V Y f	h Y g h f Y h W X
g \ f] b _	b i a V Y f	h Y g \ f] b _
g h Y d	b i a V Y f	h Y g h Y d
b c a U h \	V c c`Y U b	h \] g _ Y m U`c k g U a] b c f g d Y Y X i d Z c f h Y i h Z c b h g/] Z] h] g d f Y g Y b h U b X
		h f i Y ž h Y b @ 5 H ğ L k]`b c h W X Y W _ h Y W X U f U W h Y f Y b h f] Y g Z c f a U h! g d Y!
		W ě W _ Y m g
c`X a U h \	V c c`Y U b	h \] g _ Y m U[g U Z c b h U g f Y d f Y g Y b h] b[U b c`X g W X c c`H ğ L a U h Z c b h U b X
		X] g U V`Y g h Y C D 9 B H M D 9 W ě X Y d U h

H Y Y d U f U a Y h Y f g] g U \ U g \ k] h a] i Y X _ Y m m d Y g" H Y Y f Y U f Y g Y j Y b d c g g] V`Y g h f] b[_ Y m g ž U g k Y`U g U b i a V Y f c Z] b h Y [Y f] b X] W ě g f h Y g Y g h U f h Z f c a , i d ě" H Y Y g Y j Y b g h f] b[g U f Y U W ě i U`m i g Y X] b g h Y U X c Z h Y V c h t c a g Y j Y b] b X] W ě g ž V Y W ě i g Y h U h [] j Y g U b] W ě f i g Y f] b h Y f Z U W ě"



H\Y bUa Yg UbX h\Y]f]bhYfbU` fYa Udd]b[UfY.

g` Ubh	%
gdUW	&
gdUW`Sghf YhW	'
gdUW`Sg\ f] b_	(
I S\Y] [\h)
ei UX	*
YI hf USgdUW	+

H\Y W\UfUW`Yf g HUV`Y]g U @ 5 \Ug\ HUV`Y k \YfY h\Y _Ymg UfY]bhY[Yfg" K \Yb U W\UfUW`Yf]b h\Y]bdi h]g]h fbYX]bhc U [`md\ bcXYz]h[Yhg U W\UfUW`Yf W`XY h\Uhbcfa U`mfYZYfg hc Ub Ybhf]m]b h\Uh HUV`Y" : cf dfcdYf dUfU[fUd\ Vi]`X]b[UbX a Uh\ fYbXYf]b[h\Y Zc`ck]b[Y`Xg WUb VY dfYgYbh]b Ub Ybhf]m]b h\Y W\UfUW`Yf g HUV`Y" M`i WUb cZ W`i fgY UXX U` _]bX cZYI hfU Y`Xg" H\Y Yb[]bY cb`mi gYg h\cgY h\Uh]hbYYXg Zcf hmdYgYh]b[U dUfU[fUd\ cf Zcfa i `U" H\Y gi VhUV`Yg h\UhXY bY `[Uhi fYg UbX _Yfbg UfY U`gc \Ug\Yg k]h\]bhY[Yf _Ymgz UbX h\YgY]bX]W`g g\ci `X dc]bh hc Ybhf]Yg]b h\Y a U]b W\UfUW`Yf g HUV`Y"

Dfcj]X]b[`[Uhi fYg UbX _Yfbg h\]gk UmdYfa]hg HgL hc W`bghfi W`][Uhi fYg UbX UXX]bhYf!W\UfUW`Yf _Yfb]b[" < ck Yj Yfz bcfa U`mmci k]` i gY Ub CD9B HMD9 Zcbh]b W`a V]bUh]cb k]h\ @ 5 W`XY h\Uh XcYg h\]g" =b 7CBHg LH k Y \Uj Y VUgY a cXY h\Uhi gYg h\Y Yb[]bYz UbX bcXY a cXY h\Uhi gYg @ 5" 5 a cbcgdUW`X Zcbhbcfa U`m\Ug bc `[Uhi fYg UbX _Yfbg UbX]g bcfa U`mbchdfcW`ggYX UhU`"

k] Xh\	bi a VYf	k]Xh\]b gd fKYZUi `h\$Ł
\Y] [\h	bi a VYf	\Y][\h]b gd fKYZUi `h\$Ł
XYdh\	bi a VYf	XYdh\]b gd fKYZUi `h\$Ł
] hU`] W	bi a VYf	]hU`]W`ffYVh]cb]b gd fKYZUi `h\$Ł
hcdSUW`bh	bi a VYf	hcd UW`bhU`][ba Ybhd`UW`]b gd fKYZUi `hnYfcŁ
VchSUW`bh	bi a VYf	Vchca UW`bhU`][ba Ybhd`UW`z]b gd fKYZUi `hnYfcŁ
`YZhSdfchfi X] b[	bi a VYf	`YZhdfchfi X]b[ZUW`cf fP` dW`XYŁ
f] [\hSdfchfi X] b[	bi a VYf	f][\hdfchfi X]b[ZUW`cf fPf dW`XYŁ
YI dUbg] cbSZUW`cf	bi a VYf	YI dUbg]cb ZUW`cf fPYZW`XYŁ
bYI h	bi a VYf	bYI h`Uf[Yf W\UfUW`Yf]bXYI
YI hYbg] V` Y	HUV`Y	W`bgh]hi YbhdUfhg cZUb YI hYbg]V`Y fYV`dY
j YfhSj Uf] Ubhg	HUV`Y	W`bgh]hi YbhdUfhg cZUj Yfh]W` j Uf]UbhgYh
\cf] nSj Uf] Ubhg	HUV`Y	W`bgh]hi YbhdUfhg cZU\cf]ncbH` j Uf]UbhgYh
_Yfbg	HUV`Y	_Yfb]b[]bZcfa Uh]cb
`][Uhi fYg	HUV`Y	`][Uhi f]b[]bZcfa Uh]cb
aUh_Yfb	HUV`Y	a Uh\ W`H]b gdYV` W`h]cbg

: cf YI Ua d`Yz\YfY]g h\Y W\UfUW`Yf Z fKYW`a U` %\$&Ł]b h\Y Zcbh W`f%\$ Uh %\$dh" H\Y bi a VYfg h\Uh fYdfYgYbhX]a Ybg]cbg UfY]b gW`YX dc]bhg"

O`\$&Q 1 o

O`k] Xh\`Q 1 &\$&) \$z

O`\Y] [\h`Q 1 ())%%z



* & : cbhg

O"XYdh\`Q 1 \$ž
O"]hU`]WQ 1)\$- +' ž
O" _Yfbg`Q 1 o
O*' Q 1)\$- +' ž
O-' Q 1)\$- +' ž
O' -Q 1)\$- +' ž
O' ' Q 1)\$- +' ž
O(%Q 1)\$- +'

qž
O" `] [Uhi fYg`Q 1 o
O%\$&Q 1 o O" V\Uf`Q 1 %ž O" hmdY`Q 1 \$ qž
O%\$, Q 1 o O" V\Uf`Q 1 % ž O" hmdY`Q 1 \$ qž
O%\$) Q 1 o O" V\Uf`Q 1 %&ž O" hmdY`Q 1 \$ q

q

q

Hk c j YfmgdYWU` ghf]b[]bXYI Yg WUb VY i gYX U`gc. `YZhSVci bXUf m]g U j]fhi U` V\UfUWYf k \cgY
`][Uhi fYg UbX _Yfbg UfY i gYX hc \UbX`Y k cfX Vci bXUfmdfcWgg]b[" f] [\hSVci bXUf m]g gja]`Uf
Vi hbchUWYi U`mi gYX Zcf Ubm\]b[fhYH"

H\Y j U`i Yg cZ hcdSUWYbhž VchSUWYbh UbX aUh_Yfb UfY i gYX cb`mZcf a Uh\ UWYbhUbX gi dYf!
gWdh d`UWYa Ybhž gYY dU[Y , -]b h\]g a Ubi U` Zcf XYHJ`g" H\Y j U`i Yg cZ`YZhSdfchfi X] b[UbX
f] [\hSdfchfi X] b[UfY i gYX cb`mk \Yb Pdfchfi XYWUf g]g bcb!nYfc" K \YhYf cf bchYI dUb!
g] cbSZUWchf]gi gYX XYdYbXg cb h\Y Zcbhg [`cVU` YI dUbg]cb gYH]b[gž Ug k Y` Ug cb h\Y j U`i Y cZ
PUX^i ghgdUW] b["

5 a Uh\ V\UfUWYf WUb \Uj Y UbYI h `Y`X h\Uhdcbhg hc UbYI h`Uf[Yf g\UdY" <ck Yj Yfžh\Y dfYgYbW
cZ YI hYbg] V`Y k]` cj Yffi `Y bYI hž]Z h\Uh]g U`gc dfYgYbh" H\Y YI hYbg] V`Y `Y`X]b hi fb WUb VY
cj Yffi `YX Vmj Yf hSj Uf] Ubhgž h\Y C D9B HMD9 j Yfg]cb" H\Y YI hYbg] V`Y hUV`Y]g j Yfmg]a d`Y.

hcd bi a VYf hcd V\UfUWYf]bXYI
a] X bi a VYf a]XX`Y V\UfUWYf]bXYI
Vch bi a VYf Vchca V\UfUWYf]bXYI
fYd bi a VYf fYdYUHV`Y V\UfUWYf]bXYI

H\Y \cf] nSj Uf] Ubhg UbX j YfhSj Uf] Ubhg UfY UffUmg cZWca dcbYbhg" 9UW cZ h\cgY Wca dcbYbhg
]g]hgY`ZU \Ug\ cZi d hc j Y _Ymg.

[`md\ bi a VYf H\Y V\UfUWYf]bXYI " BchY h\Uh\]g]g Ub YbWcX]b[bi a VYfž bchU bUa Y"
YI hYbXYf bi a VYf CbY f\Z h\]g dUfh]g fYdYUHV`Yž nYfc f\$E ch\Yfk]gY"
ghUf h bi a VYf H\Y a UI]a i a cj Yf`Ud Uh\Y ghUfh]b[g]XY f]b gWY`YX dc]bhgŁ"
YbX bi a VYf H\Y a UI]a i a cj Yf`Ud Uh\Y YbX]b[g]XY f]b gWY`YX dc]bhgŁ"
UXj UbW bi a VYf H\Y hcH` UXj UbW k]Xh\ cZ h\]g]hYa " -h WUb VY nYfc cf a]gg]b[ž h\Yb h\Y
bUhi fU` g]nY cZ h\Y [`md\ Zcf V\UfUWYf WcadcbYbh]gi gYX"



H\Y _Yfbg HUV`Y]g U \Ug\]bXYI YX VmW\UfUW\Yf]bXYI fUbx W\UfUW\Yf]bXYI]g XY bYX Ug Y]h\Yf U bcb!bY[Uh]j Y]bhY[Yf cf h\Y ghf]b[j U`i Y f] [\hSVci bXUfntž k]h\ h\Y j U`i Yg cZ h\Y _Yfb]b[hc VY Udd`]YXž]b gW\YX dc]bhg"

H\Y `] [Uhi fYg HUV`Y]g U \Ug\]bXYI YX VmW\UfUW\Yf]bXYI fUbx W\UfUW\Yf]bXYI]g XY bYX Ug Y]h\Yf U bcb!bY[Uh]j Y]bhY[Yf cf h\Y ghf]b[j U`i Y f] [\hSVci bXUfntž k]h\ h\Y j U`i Yg VY]b[mYh Ubch\Yf ga U` \Ug\ž k]h\ h\ c `Y`Xg.

hmdY bi a VYf h\Y hmdY cZ h\]g] [Uhi fY W\ca a UbXžXYZUi `h\$
W\Uf bi a VYf h\Y W\UfUW\Yf]bXYI cZ h\Y fYgi `hUbh`] [Uhi fY

H\Y W\Uf `Y`X]b U `] [Uhi fY]g fYei]fYX" H\Y hmdY `Y`X]bg]XY U `] [Uhi fY]g h\Y bi a Yf]W\ cf ghf]b[j U`i Y cZ cbY cZ h\Y Y] [\h dceg]V`Y] [Uhi fY hmdYg gi ddcfhYX VmHgL" K \Yb HgL]bgYfhg U bYk `] [Uhi fYž]hdi hg h\Y bYk [`md\]b h\Y a]XX`Y cZ h\Y `YZhUbX f] [\h [`md\g" H\Y cf] []bU` `YZh UbX f] [\h [`md\g W\ b cdh]cbU`mVY fYhU]bYXž UbX k \Yb Uh `YUgh cbY cZ h\Ya]g _Ydhž]h]g U`gc dceg]V`Y hc a cj Y h\Y bYk]bgYfh]cb dc]bh Zcfk UfX cbY cf h\ c d`UW\g" H\Y [`md\ h\UhYbXgi d hc h\Y f] [\hcZ h\Y]bgYfh]cb dc]bhk]` VYW\ca Y h\Y bYi h `YZh"

` Ž f 1. b	\$	1.	pb
` Ž f 1. p b	%	1. p	pbf
` Ž f p1. b	&	p1.	p` b
` Ž f p1. p b	'	p1. p	p` bf
` Ž f 1. p2 b	)	1. p2	bpf
` Ž f p1. 2 b	*	p1. 2	` pb
` Ž f p1. p2 b	+	p1. p2	` pbf
` Ž f p1. p22 b	%%	p1. p22	` bpf

H\Y XYZUi `h j U`i Y]g \$ž UbX W\ b VY `YZhci h" H\Uhg] [b] Yg U bcf a U` `] [Uhi fY k \YfY h\Y `] [Uhi fY fYd`UW\g Vch\ cf] []bU` [`md\g" =b h\]g HUV`Y h\Y p]bX]W\hYg h\Y bU`]bgYfh]cb dc]bh"

* "" J]fhi U` Zcbhg

J]fhi U` Zcbhg \Uj Y VYYb]bhfcXi W\X hc cj YfW\ca Y `ja]hU]cbg cZ [ccX c`X HgL" H\Ymk YfY a cgh`m i gYX Zcf dfcj]X]b[U X]fYW\ a Udd]b[Žfca Zcf]bghUbW\ UW\WbhYX W\UfUW\Yfg cbhc U [`md\ " H\Y VUW_YbX k Ug fYgdcbg]V`Y Zcf hi fb]b[U fYZYfYbW\ hc U W\UfUW\Yf g`ch]bh c U fYU` [`md\ž dceg]V`m W\bgfhi W\YX Žfca ch\Yf [`md\g" =b ci f W\gY h\YfY]g bc VUW_YbX gc h\YfY]g U`gc bc bYXX hc dUgg h\]g]bZfca Uh]cb h\ fci [\ HgL" 6i h]hW\ b cZ W\ci fgY VY dUfhcZ h\Y Zcbh]bZfca Uh]cb UbX VYW\i gY]h]g U _]bX cZ ghUbXUfXž k Y XYgW\]VY]h\YfY"

5 W\UfUW\Yf]g j]fhi U` k \Yb]h\Ug U W\caUbXg UffUmUg dUfhcZ h\Y XUHU" 5 j]fhi U` W\UfUW\Yf W\ b]hgY`Zdc]bh hc j]fhi U` W\UfUW\Yfg Vi hVY W\YfYŽ ` k]h\ bYgh]b[Ug mci W\ b W\YUHy `ccd gUbX cj Yf ck h\Y ghUW\ fk \]W\ cZhYb]bX]W\hYg Ub Yffcf Ubntk Untk"

5h\Y Zcbh`Yj Y` h\YfY W\ b VY U Ub f]bXYI YXž Zcbhg HUV`Y" H\Y j U`i Yg UfY cbY! cf h\ c!_Ym\Ug\Yg h\Ya gY`j Ygž YUW\ Ybhf m]bX]W\h]b[cbY cZ h\Y VUgY Zcbhg]b U j]fhi U` Zcbh" =b W\gY mci f Zcbh]g fYZYff]b[hc]hgY`Z]b Zcf]bghUbW\ U j]fhi U` Zcbhž mci W\ b i gY h\Y g` ch W\ca a UbX k]h\ U nYfc Zcbh fYZYfYbW\ž k \]W\]bX]W\hYg h\Uh h\Y Zcbh]hgY`Z]g i gYX" Gcž U HUV`Y `cc_g` _Y h\]g.



Zcbhg 1 o

o bUaY 1 "dhaf, U"ž g] nY 1 *)' *\$ qž

o bUaY 1 "dgmf"ž g] nY 1 *\$\$\$\$ qž

o]X 1 ', q

q

H\Y fghfYZfYbW\X ZcbhfUh]bXYI %&]b h\]gj]fhi U` Zcbh]g dhf af, U`cUXYX Uh%\$dhž UbX h\Y gYWbX
]g dgmf`cUXYX Uh U`]hY cj Yf - dh" H\Y h\]fX cbY]g U dfYj]ci g`mXY bYX Zcbh h\Uh]g _bck b hc
@ 5HjL Ug Zcbh]X ', " H\Y UffUm]bXYI bi a VYfg UfY i gYX Vmh\Y W\UfUWYf Wta a UbX XY b]h]cbg
h\Uh UfY dUfhcZYUW\ W\UfUWYf"

H\Y WtaUbXg UffUm]g U \Ug\ k \YfY YUW\]hYa]g Ubch\Yf ga U` UffUnž k]h\ h\Y fghYbhfmfYd!
fYgYbh]b[U Wta a UbX UbX h\Y YI hfU]hYa g VY]b[h\Y dUfUa YhYfg hc h\Uh Wta a UbX" H\Y U`ck YX
Wta a UbXg UbX h\Y]f Uf[i a Ybhg UfY.

Zcbh	%	bi a VYf	gY`YW\U bYk ZcbhZfca h\Y`cW\` Zcbhg HU`Y
W\Uf	%	bi a VYf	hmdYgYh h\]g W\UfUWYf bi a VYf Zfca h\Y W ffYbh Zcbhž
			UbX a cj Y f][\hVmh\Y W\UfUWYf g k]Xh\
bcXY	%	bcXY	ci hdi h\]g bcXY fl]ghž UbX a cj Y f][\hVmh\Y k]Xh\ cZ
			h\]g`]gh
g`ch	&	& bi a VYfg	U g\cfhW hZcf h\Y Wta V]bUh]cb cZU ZcbhUbX W\Uf Wta !
			a UbX
di g\	\$		gUj Y W ffYbh dcg]h]cb
bcd	\$		Xc bch\]b[
dcd	\$		dcd dcg]h]cb
fi`Y	&	& bi a VYfg	ci hdi hU fi`Y ž UbX a cj Y f][\h
Xckb	%	bi a VYf	a cj Y Xck b cb h\Y dU[Y
f][\h	%	bi a VYf	a cj Y f][\hcb h\Y dU[Y
gdYW\ U`	%	ghf]b[	ci hdi hU PgdYW\ U` Wta a UbX
dXZ	&	& ghf]b[g	ci hdi hU D8: `]hYfU`ž h\Y fgh ghf]b[]g cbY cZcf] [] bž
			dU[YžhYI hžZcbhžX] fYW\ cf fUk/]Zmci \Uj Y cbY ghf]b[
			cb`mcf] [] b]g Uggi a YX
`i U	%	ghf]b[ž Z bW]cb	YI YW\ hY U @ 5 gW]dhk \Yb h\Y [`md\]g Ya VYXXYX/]b
			WUgY cZU ž bW]cb]h[Yhg h\Y Zcbh]X UbX W\UfUWYf WtaXY
			dUggYX
]aU[Y	%	]a U[Y	ci hdi hUb]a U[Y fh\Y Uf[i a YbhWUb VY Y]h\Yf Ub O] a!
			U[Y2 j Uf]UV`Y cf Ub]aU[YSgdYWHUV`Yt
WtaYbh	Ubm	Ubm	h\Y Uf[i a Ybhg cZ h\]g Wta a UbX UfY][bcfYX

K \Yb U Zcbh]X]g gYhfc \$ h\Yb]hk]` VY fYd`UW\X Vmh\Y W ffYbh mUgg][bYX Zcbh]X" H\]g dfYj Ybhg
h\Y bYXX Zcf \UW\Yfmk]h\ ž hi fY]X g"

H\Y dXZ cdh]cb U`gc UWWdhg U acXY _Ynk cfX]b k \]W\ WUgY h\Y h\]fX Uf[i a YbhgYhg h\Y a cXY"
H\Uhcdh]cb k]` W\Ub[Y h\Y a cXY]b Ub Y]WYbh k UmfdUgg]b[Ub Ya dhmgfhf]b[k ci`X fYgi`h]b
Ub YI hfU Ya dhm`]bYg]b h\Y D8: `Y" H\]g cdh]cb cb`ma U_Yg gYbgY Zcf j]fhi U` Zcbhg" H\Y Zcbh
a cXY cb`ma U_Yg gYbgY]b j]fhi U` Zcbhg" A cXYg UfY gca Yk \Uh ž nnmUbX dUfh]U`m]b\Yf]hYX Zfca
D8: HjL"



cf][]b YbhYf dU[Y a cXY UbX gYh\hY dcg]h]cb
dU[Y YbhYf dU[Y a cXY
hYI h YbhYf hYI ha cXY
Zcbh YbhYf Zcbha cXY f_]bX cZH\I ha cXYžcb`m]b j]fhi U` ZcbhgŁ
U` kUmġ b]g\ h\Y W ffYbhghf]b[UbX ZcfW U hfUbgZcfa]ZbYYXYX
fUk b]g\ h\Y W ffYbhghf]b[

Mci U`k Umġ bYYX hc V\YW_ k \Uh D8: VŁXY]g [YbYfUHYX VYWUi gY h\YfY WUb VY U` _]bX cZ]bhYf!
ZYfYbWġg k]h\ cdhja]nUh]cb]b h\Y VUW_YbX UbX Zcbhg UfY VŁa d`]WUHYX Ubmk Umġ < YfY]g U fUH\Yf
Y`UVcfUHY [`md\ VŁa a UbXg YI Ua d`Y i g]b[gi V\ _Ymg.

" " "

WŁaaUbXg 1 o

o "di g\` qž	!! fYaYaVYf k\YfY kY UfY
o "f][\h`ž)\$\$\$ qž	!! acj Y f][\h UVci h "\$ \$, dh
o "Zcbh`ž ' qž	!! gY`YWh h\Y ZcbhgO` Q Ybhf m
o "V\Uf`ž -+ qž	!! d`UW V\UfUWhYf -+ f15G7== fiUfiŁ
!! o "g`ch`ž &ž -+ qž	!! Ub U` hYfbUh]j Y Zcf h\Y dfYj]ci g hkc
o "dcd" qž	!! [c U` h\Y kUm VUW_
o "Xckb`ž !&\$\$\$\$ qž	!! acj Y i dkUfXg Vm UVci h ' dh
o "gdYW]U`ž "dXZ. % \$ \$ f[" q	!! gk]hW\ hc fYX VŁ`cf
!! o "dXZ`ž "cf][]b`ž "% \$ \$ f[" q	!! gk]hW\ hc fYX VŁ`cf fiU` hYfbUh]j YŁ
o "fi`Y`ž)\$\$\$\$ž &\$\$\$\$ q	!! XfUk U VUf
o "gdYW]U`ž "dXZ. \$ [" q	!! VUW_ hc V`UW_
!! o "dXZ`ž "cf][]b`ž "\$ [" q	!! VUW_ hc V`UW_ fiU` hYfbUh]j YŁ

q

" " "

H\Y XYZUi `hj U`i Y Zcf Zcbh]g U`k Umġ %UhH\Y ghUfhcZH\Y WŁaaUbXg UffUmġ H\YfYZcfYž]ZH\Y j]fhi U`
Zcbh]g YggYbh]U`mcb`mU fY!YbVŁX]b[ž h\Yb mci Xc i gi U`mbch \Uj Y WYUHYX Ub YI d`]W]h Zcbh
VŁa a UbX]b h\Y UffUmġ

Fi `Yg]bg]XY cZWŁaaUbXg UffUmġ UfY Vi]`hi d i g]b[cb`mk c X]a Ybg]cbg. h\YmXc bch \Uj Y XYdH`
: cf VŁffYVh j Yfh]WU` d`UWŁa YbŁUb YI hfU Xckb VŁa a UbX a UmVY bYYXYX"

F Y[UfX`Ygg cZH\Y Ua ci bhcz a cj Ya Ybh mci WYUHY k]h\]b h\Y WŁaaUbXgž h\Y ci hdi hdc]bhYf k]`
U`k Umġ a cj Y VmYI UWh mH\Y k]Xh\ h\Uh k Ug []j Yb]b h\Y k] Xh\ _YmcZH\Y V\UfUWYf \Ug\ " 5bm
a cj Ya Ybhg h\Uh hU_Y d`UW]bg]XY h\Y WŁaaUbXg UffUmUfY][bcfYX cb h\Y i ddYf `Yj Y`"

H\Y gdYW]U` WUb \Uj Y U dXZ. ž dXZ. cf][]b. ž dXZ. dU[Y. ž dXZ. X] fYWh. cf dXZ. fUk. dfY I " K \Yb
mci \Uj Y hc VŁbWUhybUHY ghf]b[gi g]b[h\Y dXZ VŁa a UbX a][\hVY a cfY Y]WYbh"

H\Y Y`Xg a Ybh]cbYX UVcj Y WUb VY Zci bX]b YI hfYbU` Zcbhg" ðh]g [ccX hc _YYd]b a]bX h\Uh k Y
WUb YI hYbX h\]g a cXY ž []j Yb h\Uh h\Y VUW_YbX _bck g k \Uh hc Xc k]h\]h"



* "(5XX]h]cbU` H9L Wca a UbXg

* "("% : cbhgmbhUI

@ 5H9L k j` UWVdhU VfUWVX Uf[i a YbhUg U ZcbhbUa Y.

PZcbhPanZcbh 1 oWaf%\$q

H\]g U`ck g Zcf Ya VYXXYX gdUWgžk]h\ci h h\Y bYYX Zcf Xci V`Y ei chYg" A UWc Yl dUbg]cb hU_Yg d`UW]bg]XY h\Y Uf[i a Ybh"

* "("& PZcbh] X UbX PgYhZcbh] X

PZcbh] XPZcbh

H\]g df]a]hj Y Yl dUbXg]bhc U bi a VYf" H\Y W ffYbhmi gYX Zcbh]X]g &- " < YfY UfY gca Y a cfY.'

bcfa U`	PhZ	&-
Vc`X	PVZ	' ,
]hU]W	P] h) -
Vc`X]hU]W	PV]	++

H\YgY bi a VYfg XYdYbX cb h\Y a UWc dUW_U[Y i gYX VYWli gY YUVX cbY \Ug]hg ck b k UmcZXYU`b[k]h\ Zcbhg" H\YmWUb U`gc X] Yf dYf fi bž Ug h\YmWUb XYdYbX cb h\Y cfXYf cZ `cUX]b[Zcbhg" : cf]bg]hUbWVžk \Yb]b 7CBH9LH j]fhi U` a Uh\ I B=7C89 Zcbhg UfY i gYXžk Y WUb YUg]`m[Yhcj Yf U \i bXfYX]Xg]b i gY" BchU`]Xg \Uj Y hc VY Vci bX hc U fYU` Zcbhž UZhYf U`]hg ħ ghU bi a VYf"

H\Y df]a]hj Y PgYhZcbh] X WUb VY i gYX hc YbUV`Y U Zcbhk]h\ h\Y []j Yb]Xžk \]W cZWci fgY bYYXg hc VY Uj U`X cbY"

* "(" Pbc`] [g UbX Pbc_Yfbg

H\YgY df]a]hj Yg dfc\]V]h`][Uhi fY UbX _Yfb]b[]bgYfh]cb Uh h\Y h]a Y k \Yb h\Y]b]h]U` bcXY `]gh]g Vi]`hVm@ 5H9L g a U]b Wcbhf` `ccd" Mti WUb YbUV`Y h\YgY df]a]hj Yg k \Yb mci k Ubhhc Xc bcXY `]ghdfcWVgg]b[cZ WUfUWVYfgžk \YfY H9L g bcfa U` dfcWVgg]b[k ci `X [Yh]b h\Y k UnĦ

Pbc`] [g]bhY[Yf
Pbc_Yfbg]bhY[Yf

H\YgY df]a]hj Yg WUb U`gc VY]a d`Ya YbhYX Vmcj Yf`cUX]b[h\Y `[Uhi fY Vi]`X]b[UbX _Yfb]b[Ži bW h]cbgž]"Y" VmUgg][b]b[Xi a a mŽi bW]cbg hc h\Y]f UggcWUhYX WU`VUW_g" ?YYd]b a]bX h\Uh k \Yb mci XY bY U Zcbhfl g]b[@ 5Łmci WUb U`gc ca]h h\Y _Yfb UbX `[Uhi fY hUVYgžk \]W \Ug h\Y gUa Y Y`YVhUg h\Y UVcj Y"

7 cbhfUfmc @ 5H9L h\]g]g bck U bi a VYf gc mci bYYX hc i gY Pbi aVYf cf Ph\Y" H\Y gUa Y]g hfi Y Zcf gca Y chYf bi a VYfg UbX X]a Ybg]cbg h\UhZcf gca Y fYUgcb YbXXY i d]b h\Y gYf]U`nYf h\UhdFcXi WVX U gYei YbWV cZh`_Ybg"

