

8]Y 'Hc d '%\$ 'XYf' [fÒ» hYb '? fmd hc! GdYbXYbU_h]cbYb 'XYg' >J\ fYg' &\$ &&

8 Yf'? fmd hc gY_hc f'k Uf']b 'XYf' YfghYb' < À`zhY 'XYg' >J\ fYg' &\$ && a]h Yf\ YV']WYb' < YfUi gZc fXYfi b[Yb' _cbZfc bh]Yfhž' XU'X]Y DfY]gY'k]W h][Yf'J Yfa Ò[Ybgk YfhY'k]Y'6]hWc]b'f6H7Ł'i bX 9h\ Yf'f9H< Ł'Y]bYb'K Yfhj Yf'i ghj cb'ØVYf') \$'i j YfnY]WYbYhYb''8]Y'G]hi Uh]cb'k i fXY'Xi fW'XYb Ni gUa a YbVfi W'XYg'HYffU!² _cgmghYa g]a 'nk Y]hYb'E i UfhU' k Y]hYf'j YfgW'ĀfZhž'k Ug'g]W'Ui Z'X]Y'6fUbWY'Ui gk]f_hY" ðZc`[YXYggYb'a Y`XYhYb'[fc» Y'6fUbWYbU_hYi fY'k]Y'H\ fYY 5ffck g'7Ud]hU'ž'7Y'g]i g'BYhk cf_'i bX'J cmU[Yf'8][]hU'gdĀhYf]a ' >J\ f' ðgc`j Ybn'Ub''8 Yf'6ĀfYba Uf_hj YfUb`UgghY F]g]_c_Ud]hU'[YVYf'fU 7głž'VY]' \fYb' ðj Ygh]h]cbYb']b'X]Y ? fmd hc]bXi ghf]Y'j c fg]W h][Yf'ni 'k YfXYb''@Ui h'8 UhYb'j cb 8Y:]@Ua U']gh'X]Y'J 7!:]bUbn]Yfi b[]b'X]YgYa 'GY_hc f'ghYh][ni fØW_[Y[Ub[Yb'i bX'j cb', ž+'A]''UfXYb'I G!8c``Uf / Ua d^Y``d/

8 Yf'? fmd hc gY_hc f'k Uf']b 'XYf' YfghYb' < À`zhY 'XYg' >J\ fYg' &\$ && a]h Yf\ YV']WYb' < YfUi gZc fXYfi b[Yb' _cbZfc bh]Yfhž' XU'X]Y DfY]gY k]W h][Yf'J Yfa Ò[Ybgk YfhY'k]Y'6]hWc]b'f6H7Ł'i bX'9h\ Yf'f9H< Ł Y]bYb'K Yfhj Yf'i ghj cb'ØVYf') \$'i j YfnY]WYbYhYb''8]Y'G]hi Uh]cb k i fXY'Xi fW'XYb'Ni gUa a YbVfi W'XYg'HYffU!² _cgmghYa g]a nk Y]hYb'E i UfhU'k Y]hYf'j YfgW'ĀfZhž'k Ug'g]W'Ui Z'X]Y'6fUbWY Ui gk]f_hY" ðZc`[YXYggYb'a Y`XYhYb'[fc» Y'6fUbWYbU_hYi fY'k]Y H\ fYY'5ffck g'7Ud]hU'ž'7Y'g]i g'BYhk cf_'i bX'J cmU[Yf'8][]hU'gdĀhYf']a ' >J\ f' ðgc`j Ybn'Ub"

8 Yf'6ĀfYba Uf_hj YfUb`UgghY'F]g]_c_Ud]hU'[YVYf'fU 7głž'VY]' \fYb' ðj Ygh]h]cbYb']b'X]Y? fmd hc]bXi ghf]Y'j c fg]W h][Yf'ni 'k YfXYb''@Ui h'8 UhYb'j cb'8Y:]@Ua U']gh'X]Y'J 7!:]bUbn]Yfi b[]b'X]YgYa 'GY_hc f'ghYh]['ni fØW_[Y[Ub[Yb'i bX'j cb', ž+'A]''UfXYb'I G!8c``Uf']a 'nk Y]hYb'E i UfhU'Ui Z'*'A]''UfXYb'I G!8c``Uf']a 'nk Y]hYb'E i UfhU'Ui bX

XUbb`Ui Z' ž) `A]`]UfXYb`I G!8c``Uf`]a `Xf]hhYb`E i UfhU``[YZU``Yb""`b
k Yb][Yf`U`g`&(`Ghi bXYb`V]g`9bXY`&\$&&`UVYb`J 7g`]a `j]YfhYb
E i UfhU`Yhk U`&`A]`]UfXYb`I G!8c``Uf`]b`?fmdhcdfc`Y_hY`]bj Ygh]Yfh"

Hfchn`fØW_`Äi Z][Yf`J 7!`b] Ygh]h]cbYb`Yf\]Y`hYb`Y]b][Y
?fmdhcdfc`Y_hY`]a `đ\`f`&\$&&`[fc»Y`A]hhY`""`<]Yf`g]bX`X]Y`Hcd`%\$
XYf`[fØ»hYb`?fmdhc!GdYbXYbU_h]cbYb`Ui`h`8Y:]@Ua`U"

@i bU`:`ci bXUh]cb`:`; i UfX.`%`A]``]UfXY`8c``Uf

8]Y`@i bU`:`ci bXUh]cb`:`; i UfX`f@`:`; ž`Y]bY`[Ya`Y]bbØm][Y
Cf[Ub]gUh]cb`\]bhYf`XYa`ni`gUa`a`Yb[YVfcW`YbYb`HYffU!
²`_cgmghYa`ž`Yf\]Y`h`j]b`X]YgYa`đ\`f`XYb`VYXYi`hYbXghYb
9]bnY`VYhfU[""`a`:`YVfi`Uf`gUa`a`Y`hY`XUg`I`bhYfbY\`a`Yb`%`A]``]UfXY
I`G!8c``Uf`]b`Y]bYa`df]j`UhYb`Hc`_Yb!J`Yf`_Ui`Z`i`a`X]Y`6]bXi`b[`Ub
HYffUI`G8`fi`GH`ni`g]W`Yfb`"8]Y`6Ya`Ø\i`b[Yb`XYf`@`:`; `gW`i`[Yb
`YXcW`ZY`\`ž`XU`I`GH`gY]bY`%!8c``Uf!DUf]h`h`j`Yf`cf`i`bX`Y]b][Y
A`cbUhY`gd`h`Yf`Ui`Z`Bi`""UVghØfnhY"

7fcgg`F]j`Yf.`*`&\$`A]``]cbYb`8c``Uf

5a`" ` \$"`A`Äfn`[UV`7fcgg`F]j`Yf`VY`_Ubbhž`XUgg`Yg`*`&\$`A]``]cbYb`I`G!
8c``Uf`j`cb`5bXfY`YggYb`<`cfck`]hnž`9`Xf]X[Y`i`bX`UbXYfYb
`b] YghcfYb`[YgUa`a`Y`h`\`Uh`8Ua`U`g`gU[hY`X]Y`:`]fa`Už`XUg`?`Ud]hU`
k`ØfXY`]b`]\`fY`NU`\`i`b[g]i`bX`?fmdhc`Øgi`b[Yb`Z]Y»Yb"

7fcgg`F]j`Yf`]gh`Y]b`]b`BYk`đ`fgYm`Ubg`Ägg][Yg
:`]bUbnX]Ybgh`Y]ghi`b[gi`bhYfbY\`a`Ybž`XUg`gY]bYb`?i`bXYb`Y]bY
VfY]hY`DU`YhhY`j`cb`8]Ybgh`Y]ghi`b[Yb`UbV]YhYhž`XUfi`bhYf
Y]b[YVYhhYhY`NU`\`i`b[Ybž`?`UfhYbž`?`fYX]hY`i`bX`?fmdhc`Øgi`b[Yb"
8Ug`I`bhYfbY\`a`Yb`VYhfY]Vh`?`fYX]h`i`bX`NU`\`i`b[gX]YbghY`ZØf`j`]Y`Y
XYf`[fØ»hYb`?fmdhc`i`bhYfbY\`a`Ybž`Y]bgW`Y]Y»`]W`7c]bVUgY"

: Yi Yfv`ØW_Y.`)) \$`A]``]cbYb`I`G!8c``Uf

`a`đ`bi`Uf`gUa`a`Y`hY`XYf`5bV]YhYf`j`cb`8][]hU`!5ggYh!
`b`ZfUghfi`_hi`fYbž`:`]fYV`cW_gž`)) \$`A]``]cbYb`I`G!8c``Uf`VY]Y]bYf

6Yk Yfhi b['j cb', 'A]''UfXYb'I G!8c``Uf'j cb']bgh]hi h]cbY``Yb
#j YghcFYbžXUfi bhYf'8%'7Ud]hU`DUfhbYfg'i bX'GdUf_'7Ud]hU''

8 Ug'I bhYfbY\ a Yb']gh'gY]h'XYf'GdYbXYbU_h]cb'j cb'fi bX', \$\$
:]bUbn]bgh]hi hYb'Ui Z\Yi hY'ØVYf'" '\$\$'[Yk UWgYb" '9g\Uh'Ui W
X]Y', VYfhfU[i b['j cb'ØVYf" '6]''cbYb'I G!8c``Uf'Ub'X][]hU`Yb
J Yfa Ò[Ybgk YfhYb'j cb'&'6]''cbYb'I G!8c``Uf']a 'ŷbi Uf'ni a
NY]hdi b_h'XYg'J YfZUggYbg'X]YgYg'5fh]_Y`g'[Yg]WXYfh"

J]Y`YW_. '() \$ 'A]''cbYb'8c``Uf

8]Y'9h\YfYi a !G_U`Yfi b[g`Ògi b['Dc`m[cb'gUa a Y`hY`Yhk U'() \$
A]''cbYb'I G!8c``Uf'Xi fW`Y]bYb'Df]j Uhj Yf_Ui Z'gY]bYg'bUh]j Yb
A 5H⇒!Hc_Ybg']b`Y]bYf':]bUbn]Yfi b[gfi bXY'i bhYf'XYf'@Y]hi b['j cb
GYei c]U'7Ud]hU`#X]U`]a ' : YVfi Uf"

8]Y':]bUbn]Yfi b['k Uf'X]Y`YfghY'[fc»Y':]bUbn]Yfi b[gfi bXY'j cb
Dc`m[cb'gY]h'gY]bYf': fØbXi b[']a 'ŷ\ f'&\$%+"

7cbgYbGmg. '() \$ 'A]''cbYb'I G!8c``Uf

8Yf'9h\YfYi a !GcZhk UfYYbhk]W`Yf'7cbgYbGmg'[UV']a 'A Åfn'XYb
5VgW`i gg`Y]bYf':]bUbn]Yfi b[gfi bXY'j b'<Ø\Y'j cb'() \$ 'A]''cbYb
I G!8c``Uf'a]h'Y]bYf'6Yk Yfhi b['j cb'+ 'A]''UfXYb'I G!8c``Uf
VY_Ubbhi bX'j YfXcddY`hY`XUa]h'gY]bY'6Yk Yfhi b['gY]h'Bcj Ya VYf
&\$&%"

8]Y`Fi bXY'k i fXY'j cb'DUfU:]'7Ud]hU`Ub[YZØ\fhž'a]h'6YhY']][i b[
j cb`HYa UgY_ž'GcZh6Ub_`i bX'A]WfcgcZh"

M [U'@UVg. '() \$ 'A]''cbYb'8c``Uf

M [U'@UVgž'XYf'GW`ÒdZYf'XYf'b]W`h'Z b[]V`Yb'Hc_Yb!GUa a `i b[
fB: HĚ'XYg'6cfYX'5dY`MUW`h'7'i Vž'gUa a Y`hY']a 'A Åfn'i bhYf'XYf

@Y]hi b['j cb'5bXfYgYb'<cfck]m' () \$'A]''cbYb' l G!8c``Uf'Ub
GYX!:]bUbn]Yfi b["'8]Y'GdYbXYbU_h]cb'ZUbX'Y]bY'K cWXY'bUW
XYf'9]bZ0\fi b['j cb'5dY7c]b'f5D9E'Xi fW' M [U'ghUhhz'Y]bYa
; cj YfbUbW!Hc_Ybž'XUg']bbYf\U'V'XYg'5D9!² _cgmghYa g
j Yfk YbXYh'k]fX"

6Yf]W\hYb'ni Zc`[Y'i bhYfgi W\h'X]Y' l b]hYX'GhUhYg'GYW' f]h]Yg'UbX
9l W\Ub[Y'7ca a]gg]cb'fG97E'XYfnY]h'X]Y'J YfhY]i b['j cb'5D9'Ub
ϕ\UVYf'j cb'6cfYX'5dY'MW\h'7'i V'i bX'j Yfk UbXhYb'B: Hg"

; Y\Y]a Yg'B Yhnk Yf_.' (\$\$'A]''cbYb'8c``Uf

⇒ 'ϕ]bi Uf'gUa a Y'hY'XUg'Ui Z'8UhYbgW\i hn'Ui g[Yf]W\hYhY
6`cW_W\U]b'GYWfYh'BYhk cf_.' (\$\$'A]''cbYb' l G!8c``Ufž'Ui Z[YhY]h]b
nk Y]HY]Y"'8Yf'YfghY'k Uf'Y]b'² _cgmghYa ZcbXg']b'<0\Y'j cb'&&)
A]''cbYb' l G!8c``Uf'ni f' l bhYfgh0hni b['j cb'9bhk]W_Yfbž'X]Y'Ui Z
XYa'BYhnk Yf_'Ui ZVUi Yb"

8Yf'nk Y]hY'k Uf'Y]b'5WW'YfUhc f!Dcc``]b'<0\Y'j cb'%+) 'A]''cbYb
l G!8c``Ufž'XYf'a]h'XYa'G7FH!Hc_Yb'XYf'D'Uhhzcf'a '[YZ0`h'k Ufž'i a
Ni gW\0ggYž? Ud]hU'i bX'5bfY]nY'ni f'GhY][Yfi b['XYf
6Ybi hnYfU_nYdhUb'n'VYfY]hni ghY''Yb"'Ni 'XYb'GhU_Y\c'XYfbž'X]Y
G7FH'Yf\U'hYb'\UVYbž[Y\0fYb'XUg']bnk]gW\Yb'VUb_fchhY
5`Ua YXU'FYgYUfW\ž?i 7c]b'@UVgž'<i cV]J Ybhi fYg'i bX'UbXYfY"

: HL' l G5.' (\$\$'A]''cbYb' l G!8c``Uf

: HL' l Gž'X]Y'Ua Yf]_Ub]gW\Y'9]b\Y]h'XYf'i a _Àa dZhYb'? fmdhc!60fgY
: HL'ž'gUa a Y'hY']a 'ϕ]bi Uf' (\$\$'A]''cbYb'8c``Uf'VY]Y]bYf
6Yk Yfhi b['j cb', 'A]''UfXYb'8c``Uf"

Ni 'XYb'ϕ] YghcfYb'XYf'GdYbXYbU_h]cb'[Y\0fhYb'XUg'C bhUf]c
HYUW\Yfg'DYbg]cb'D'Ub'6cUfXž'@[\hgdYX'J Ybhi fY'DUfhhYfgž
GcZhVUb_'J]g]cb': i bX'&ž'HYa UgY_'<c'X]b[gž'A i 'h]W\]b'7Ud]hU'i bX
DUfUX][a "'@Y]XYf'\UVYb'X]YgY' l bhYfbY\ a Yb']\fY'ϕ] Ygh]h]cb']b
X]Y'? fmdhc!60fgY'bUW\']\fYa'ϕ]b[ghYb'ϕ]gc'j YbnUbhfU['j Yf'cfYb"

: HL . (\$ \$ ' A] `] c b Y b ' 8 c ` ` U f

? i f n ' b U W X Y a : : HL ' l G (\$ \$ ' A] `] c b Y b ' l G ! 8 c ` ` U f ' U i Z [Y V f U W h
\ U h h ž g] W X Y f h Y ' g] W X ' g Y] b Y ' A i h h Y f [Y g Y ` ` g W U Z h ' X Y b ' [' Y] W X Y b ' 6 Y h f U [
j c b ' Z U g h ' X Y b g Y ' V Y b ' ð j Y g h c f Y b ž ' Y X c W ' a] h ' Y] b Y f ' \ Ö \ Y f Y b
6 Y k Y f h i b [' j c b ' ' & ' A] `] U f X Y b ' l G ! 8 c ` ` U f "

: HL ' a Y ` X Y h Y '] a ' B c j Y a V Y f ' ð g c ' j Y b n ' U b ž ' b U W X Y a ' Y g ' a] h ' Y] b Y a
@] e i] X] h Ā h g Y b [d U g g '] a ' N i g U a a Y b \ U b [' a] h ' g Y] b Y a ' H c _ Y b
_ c b Z f c b h] Y f h k U f " B U W X Y a ' ð g c ' j Y b n U b h f U [' g W f] Y V Y b ' Y] b [Y
ð j Y g h c f Y b '] b ' X Y f ' F i b X Y '] \ f Y ' ð j Y g h] h] c b Y b '] b ' X] Y ' 6 Ö f g Y ' U V "

B Y U f ' D f c h c W ě ` . ') \$ ' A] `] c b Y b ' l G ! 8 c ` ` U f

8 Y f ` Y h n h Y ' U i Z X Y f ' @] g h Y ' X Y f ' % \$ ' [f Ö » h Y b ' ? f m d h c ! G d Y b X Y b U _ h] c b Y b
X Y g ' \ \ f Y g ' & \$ & &] g h ' X Y f ' 6 ` c W _ W U] b ! 9 b h k] W _ Y f ' B Y U f ' D f c h c W ě ` " 8] Y
D ' U h h Z c f a ' [U V ' V Y _ U b b h ž ' X U g g ' g] Y '] b ' Y] b Y f ' :] b U b n] Y f i b [g f i b X Y
i b h Y f ' X Y f ' @ Y] h i b [' X Y g ' < Y X [Y Z c b X g ' H] [Y f ' ; ` c V U `] a ' 5 d f] ` ') \$
A] `] c b Y b ' l G ! 8 c ` ` U f ' [Y g U a a Y ' h ' \ U h "

8 U a U ` g ' g U [h Y ' B Y U f ž ' X] Y ' :] b U b n] Y f i b [' k Y f X Y ' j Y f k Y b X Y h ž ' i a ' X] Y
8 Y n Y b h f U] g] Y f i b [' g Y] b Y g ' 2 _ c g m g h Y a g n i ' V Y g W X ' Y i b] [Y b " ' G Y] h ' X Y f
G d Y b X Y b U _ h] c b '] g h ' X U g ' D f c ' Y _ h j c b ' () \$ ' X U f U i Z ' U i Z V U i Y b X Y b
D f c ' Y _ h Y b ' U i Z \ Y i h Y ' + \$ \$ ' U b [Y k U W X g Y b "

8 Y h U] ` g

6 Y g i W X Y b ' G] Y ' i b g ' U i Z . ' _ f m d h c ! b Y k g " U h