

B][Yf]Ug`bUh]cbU`Y`6`cW_WX U]b!F]WX h`]b]Y
j cb`XYf`F Y[]Yfi b[`[fØbYg`@]WX h`[Y[YVYb

8 Ug`b][Yf]Ub]gWX Y`6i bXYga]b]ghYf]i a`ZØf`?ca a i b]_Uh]cb
i bX`X][]hU`Y`K]fhgWX UZhi fi A 789Ł`\\Uh`X]Y`B Uh]cbU`
6`cW_WX U]b`Dc`]Wmi[YbY`a][hž`XU`XUg`@UbX`X]Y`GWX UZI b[
Y]bYf`V`cW_YhhYbVYhf]YVYbYb`K]fhgWX UZhi j YfXcddY`h`8]Y
5bbU`a Y`XYf`F]WX h`]b]Y`Xi fWX`X]Y`F Y[]Yfi b[`k]fX`XYb`K Y[
ZØf`X]Y`Zcfa Y`Y`Bi hni b[`XYf`HYWX bc`c[]Y`]b`XYa`@UbX
YVbYbž`XUg`]b`XYb`Y`hnhYb`š\\fYb`Y]bY`VYXYi hYbXY
9]bZØ`fi b[`j cb`?fmdhc[fUd`\\Y`YfZU`fYb`\\Uh`8 Ug`: A 789
[`Ui Vhž`XUgg`g]WX`gY]bY`i a gYhni b[`gck c`\\`Ui Z`XYb
ÒZZYb`h`]WX Yb`U`g`Ui WX`Ui Z`XYb`df]j UhYb`GY`_hc`f`]b`B][Yf]U
dcg]h]j `Ui gk]f_Yb`k]fX`"6`cW_WX U]b!5bbU`a Y`8Yf`Øb[ghY
J c f g h c » `]b`F]WX hi b[`6`cW_WX U]b`k i fXY`Ui WX`Xi fWX`X]Y
6Ya Ø`i b[Yb`B][Yf]Ug`Ui g[Y`Òghž`g]WX`j cb`gY]bYf`ghUf`_Yb
k]fhgWX UZhi]WX Yb`5V`\\Àb[][_Y]hj ca`^2`!`/ Ua d`^Y`^]d/



8 Ug`b][Yf]Ub]gWX Y`6i bXYga]b]ghYf]i a`ZØf`?ca a i b]_Uh]cb`i bX
X][]hU`Y`K]fhgWX UZhi fi A 789Ł`\\Uh`X]Y`B Uh]cbU`6`cW_WX U]b`Dc`]Wm
[YbY`a][hž`XU`XUg`@UbX`X]Y`GWX UZI b[`Y]bYf`

V`cW__YhhYbVYhf]YVYbYb`K]fhgWkUZhi j YfXcddY`h"

8]Y`5bbU\ a Y`XYf`F]Wk h]b]Y`Xi fWk`X]Y`FY[]Yfi b[`k]fX`XYb`K Y[
Z0f`X]Y`Zcfa Y`Y`Bi hmi b[`XYf`HYWkbc`c[]Y`]b`XYa`@UbX`YVbYbž
XUg]b`XYb`YhhYb`Y\ fYb`Y]bY`VYXYi hYbXY`9]bZ0\ fi b[`j cb
?fmdhc[fUd\]Y`YfZU\ fYb`\Uh"8 Ug]: A 789[`Ui Vhž`XUgg`g]Wk`gY]bY
I a gYhni b[`gck c\`Ui Z`XYb`0ZZYbh]WkYb`U`g`Ui Wk`Ui Z`XYb
df]j UhYb`GY`hcf`]b`B][Yf]U`dcg]hj`Ui gk]f`Yb`k]fX"

6`cW_WkU]b!5bbU\ a Y

8Yf`0b[ghY`J c fghc»]b`F]Wk hi b[`6`cW_WkU]b`k i fXY`Ui Wk`Xi fWk
X]Y`6Ya 0\i b[Yb`B][Yf]Ug`Ui g[Y`0ghž`g]Wk`j cb`gY]bYf`ghUf`Yb
k]fhgWkUZhi]WkYb`5V\Ab[][_Y]hj ca`2`!`i bX`; UggY`hcf`ni`0gYb
i bX`ghUhhXYggYb`XYf`K]fhgWkUZhi ni`Yf`Ui VYbž`]b`Y]bY`j cb`X][]hU`Yb
HYWkbc`c[]Yb`Ub[Yhf]YVYbY`K]fhgWkUZhi ni`gd f]b[Yb`"

Gc`\Uh`XUg`6i bXYga]b]ghYf]i a`Z0f`?ca a i b]_Uh]cb`i bX`X][]hU`Y
K]fhgWkUZhi]a`5i ZhfU[`XYf`6i bXYgfY[]Yfi b[`X]Y`B Uh]cbU`Y
6`cW_WkU]b!Dc`]Wni f`8]j Yfg]Zn]Yfi b[`XYf`K]fhgWkUZhi`Ybkh]W_Y`h"
8]Yg`ghY`h]a`9]b`_Ub[`a]h`XYf`B Uh]cbU`8][]hU`9Wk`bca m`Dc`]Wn
UbX`GhfUHy[mifB89DGž`X]Y]a`Bcj Ya VYf`&\$%-`j cb`Df`Ag]XYbh
A i \Ua a UXi`6i \Uf]`j cf[YghY`h`k i fXY"

5bgWk`Y» YbX`g_]nn]YfhY`XYf`YfghY`9bkh i fZ`XYf`F]Wk h]b]Yž`XYf`ja
C`_hcVYf`&\$&\$`j Yf0ZZYbh]Wk`h`k i fXYž`X]Y`GhfUHy[]Y`i bX`Yf`_`ÀfhYž
XUgg`g]Y`a]h`XYb`,`G`Ai`Yb`XYf`F cUXa Ud`8 ÷ #H5@B ÷ 9F ÷5`XYg
: A 789`0VYfY]bgh]a a h`G]Y`_cbnYbhf]YfYb`g]Wk`Ui Z
9bkh]W_`i b[gfY[i`]Yfi b[ž`X][]hU`Y`?ca dYhYbn`i bX`: À\][_Y]hYbž
gc`]XY`#ZfUghfi`_hi fž`GYfj]Wk]bZfUghfi`_hi fž`9bkh]W_`i b[`i bX
: 0fXYfi b[`X][]hU`Yf`8]YbghYž`k Y]WkY`#ZfUghfi`_hi fž`X][]hU`Y
; YgY`gWkUZhi bX`bYi Y`HYWkbc`c[]Yb`i bX`gWk`Y»`]Wk`X]Y
9bkh]W_`i b[`i bX`,`VYfbU\ a Y`j cb`]bX][YbYb`#U`hYb"

8]Y`J]g]cb`XYf`F]Wk h]b]Y`]gh`Ygž`Y]bY`6`cW_WkU]b!VUg]YfhY
K]fhgWkUZhi ni`gWk UZZYbž`X]Y`g]WkYfY`HfUbgU`_h]cbYbž
8UhYbUi ghUi gWk`i bX`K YfhYUi ghUi gWk`nk]gWkYb`A YbgWkYbž
I bhYfbY\ a Yb`i bX`FY[]Yfi b[Yb`i bhYfgh0hni bX`XUXi fWk

⊕bcj Uh]cbž'J YfhfUi Ybž'K UW\ghi a`i bX'K c\`ghUbX'ZØf'U`Y'ZØfXYfh"
8]Y'I a gYhni b['XYf'B Uh]cbU`6`cW_WU]b'Dc`]Wm'k]fX'g]W'gck c\`
Ui ZXYb'ÖZZYbh]W\Yb'U'g'Ui W'Ui Z'XYb'df]j UhYb'GY_hcf'XYg'@UbXYg
dcg]hj'Ui gk]f_Yb"

8]Y'B Uh]cbU`⊕Zcfa Uh]cb'HYW\bc`c[m'8Yj Y`cda Ybh'5[YbWm
fB ⊕H5Ł'k]fX'VYUi ZhfU[hž'X]Y'dc`]hgW\Yb'⊕]h]Uhj] Yb'i bhYf'XYf
5i Zg]W\h'XYg': A 789'ni`_ccfX]b]YfYb""8]Y'6Y\ØfXYb'\UVYb'Ui W
Y]bYb'a i`h]gY_hcfU'Yb'@Yb_i b[gUi ggW\i gg'Y]b[Yf]W\hYhž'i a`X]Y
I a gYhni b['XYf'Dc`]h]_ni`ØVYfk UW\Yb"

8Yf': YXYfU`9I YW h]j Y`7ci bW`'\]b[Y[Yb'k]Yg'X]Y'fY'Yj UbhYb
FY[i`]Yfi b[gVY\ØfXYb'`B ⊕H5ž'B][Yf]Ug'NYbhfU`VUb_ž'X]Y
B Uh]cbU`I b]j Yfg]h]Yg'7ca a]gg]cbž'X]Y'GYW'f]h]Yg'UbX'9I W\Ub[Y
7ca a]gg]cb'i bX'X]Y'B][Yf]Ub'7ca a i b]WUh]cbg'7ca a]gg]cb'`Ubž
FY[i`]Yfi b[gghfi _hi fYb'ZØf'X]Y'6`cW_WU]b!⊕ d`Ya Ybh]Yfi b[]b
j YfgW\]YXYbYb'K]fhgW\UZhggY_hcfYb'ni`Yb'k]W_Y'b"

I bhYfXYggYb'd`Ubh'X]Y'b][Yf]Ub]gW\Y'G97ž'X]Y'Hc_Yb]g]Yfi b[`ni
i bhYfghØhnYbž'k cVY]'XYf'GW\k Yfdi b_h'Ui ZfYU'Yb
J Yfa Ö[Yb'gk YfhYb'k]Y'5_h]Ybž'5b'Y'\Yb'i bX'⊕ a a cV]']Yb''Y[h"
?fmdhck Å\fi b['ghY'h'YXcW'`b]W\h'Ui Z'XYf'F cUXa Ud"

5bZUb['X]YgYg'⊕\fYg'k i fXY'XUg'@UbX'NYi [Y`Y]bYf
; Y`X_bUdd\Y]hž'X]Y'ni`[Yk U'hhÅh][Yb'DfchYghYb'ZØ\fhYž'VY]'XYbYb
i bnÅ\`][Y'6Øf[Yf'j Yf'Yhni bX'Y]b][Y[YhØhY'h'k i fXYb" B][Yf]UbYf
ghfØa Yb']b'GW\UfYb'ni`?fmdhck Å\fi b[Ybž'i a`g]W\`[Y[Yb'X]Y
U_hi Y`Y`⊕ZUh]cb'UVni g]W\Yfb'i bX'X]Y'j YfgW\]YXYbYb
6YgW\fÅb_i b[Yb'ZØf'B U]fU!HfUb'gU_h]cbYb'VY]'C b']bY!NU\`i b[Yb
ni`i a [Y\Yb"8 Ug'UZf]_Ub]gW\Y'@UbX'VY'Y[hY']a`7\U]bU`mg]g'&\$&&
; `cVU`7fmdhc'5Xcdh]cb'⊕XYI`XYb'%"`D`Uhn'i bX'VY]a`DYYf!hc!
DYYf!6ØfgYb\UbXY'gj c`i a Yb'XYb'%"`D`Uhn"

J Yf`Ui Z'XYf'9]bZØ\fi b['j cb'6`cW_WU]b!
HYW\bc`c[]Yb

Df]W\k UhYf\ci gY7ccdYfg'fDk 7Ł'\Uh_Øfn`]W\Y]bYb'6Yf]W\h
j YfÖZZYbh]W\hž']b'XYa`X]Y'6`cW_WU]b!HYW\bc`c[]Y'Ui gZØ\f`]W\

UbU`mg]Yfh'k]fX""9g'ghY`hY'ZYghž'XUgg'6`cW_WU]bž'X]Y'ni ZÄ`]['Y]bY
XYf' g]W'Ua' gW.bY`ghYb'Ybhk]W_Y'bXYb'HYW.bc`c[]Yb'XYf'K Y'h
]ghž'X]Y'K Y'hk]fhgW.UZh'V]g'&\$' \$'a]h'%ž+* '6]`]cbYb'! G!8c`Uf
Ub_i fVY`b'_ÖbbhY"

8]Y'^2 _cbca Yb'XYg':]bUbnf]YgYb' [Y\Yb'XUj cb'Ui gž'XUgg'X]Y
A Y\f\Y]h'XYf'! bhYfbY\ a Yb'V]g'&\$&) '6`cW_WU]b'bi hnYb'k]fX""6]g
&\$&) 'k]fX'XUg'6-Đ'j cb'6`cW_WU]b'Ui Z' (&&'A]`]UfXYb'! G!8c`Uf
[YgW.Ähnh"

...

8YhU]`g

6Ygi W.Yb'G]Y'i bg'Ui Z.'_fmdhc!bYk g"Uh