

8]Y'j Yfa]gghY'*+! λ \f][Y'Ui g'; fY]Zgk U`X'k i fXY'[YZ bXYb" Dc`]nY]'VYXUb_h'g]W\'ZØf'X]Y'<]bk Y]gY'XYf'6Yj Ò`_Yfi b["

5 i Z_`Àfi b['XYg'J Yfa]gghYbZU``g. '9]b @]W\ hV`]W_'ZØf'X]Y'; Ya Y]bXY'; fY]Zgk U`X

; fY]Zgk U`X'fbhgŁ

8]Y'ÒZZYbh`]W\Y'6Ygcf[b]g']b'; fY]Zgk U`X'ØVYf'XUg'JYfgW\k]bXYb
Y]bYf'*+!'À\f][Yb': fUi '\Uh'Ua '%* "'5i [igh'&\$&('ZØf'9f`Y]W\hYfib[
[Ygcf[h"BUW\']bhYbg]jYb'9fa]hh`ib[Yb'ibX'nU\`fY]W\Yb
<]bk Y]gYb'Uig'XYf'6YjÒ`_Yfib['_cbbhY'X]Y'jYfa]gghY'DYfgcb
YfZc`[fY]W\'UiZ[YZibXYb'kYfXYb"'8]YgYf'JcfZU``'nY][hž'k]Y'k]W\h][
X]Y'Yb[Y'NigUaaYbUfVY]h'nk]gW\Yb'6Øf[Yfb'ibX'Dc`]nY]']gh'ibX
k Y`W\Y'Fc``Y'X]Y'7caaib]hm']b'XYf'G]W\Yf\Y]h'gd]Y`h"

8]Y'Fc``Y'XYf'6Yj Ò`_Yfi b['VY]'XYf 5i Z_`Àfi b[

 $8]Y YbhgWXY]XYbXY'K YbXi b[']b'XYf'Gi WXY'bUWX'XYf'* +! *\hat{A} \f][Yb _Ua 'Xi fWX'Y]bYb'k Yfhj c``Yb' <]bk Y]g'Y]bYg'6Øf[Yfgž'XYf'X]Y _Dc`]nY]'U`Ufa]YfhY''8]Yg'i bhYfghfY]WXh'X]Y'J YfUbhk cfhi b['i bX'XYb 9]bZi ggž'XYb'YXYf'9]bnY`bY']b'XYf'; YgY``gWXUZh'Ui gØVYb'_Ubb'' 6Øf[YfVYhY]`][i b[']gh'b]WXh'bi f'Y]bY'dUgg]j Y'I bhYfghØhni b[ž gcbXYfb'gd]Y`h'Y]bY'U_h]j Y'Fc``Y'VY]'XYf'G]WXYf\Y]h']b'XYf ; Ya Y]bXY''$

2 ZZY b h`] WX Y :: U\ b X i b ['j c f 'X Y f 'F Ø W__Y \ f

 $8]Y \cdot Dc `]nY] ` \ UhhY \cdot X]Y : U \setminus bXi b [\ 'bUWX \cdot XYf'j \ Yfa \]gghYb : fUi ni b AWX gh Ua ` A cf [Yb ` XYg ` % * " 5i [i gh [YghUfhYh" 8]YgY \cdot C d YfUh]cb f]WX hYhY \cdot g]WX \cdot Ub \cdot X]Y \cdot ^2 ZZYbh`]WX _Y]hži a ` a]h\]`ZY 'j cb ' <]bk Y]gYb Ui g ` XYf ' 7 ca a i b]hm Y]bY \ gWX bY ``Y ' 5i ZZ]bXi b [` ni ` Yfa \ O[`]WXYb " 8 Yf ' 9]bgUhn 'j cb 'gcn]U `Yb ' A YX]Yb 'i bX ``c _U `Yb ' B UWX f]WX hYb 'ghAf_h XUg ' 6 Yk i gghgY]b 'i bX `nY][hž'k]Y 'k]WX h][`XYf ' 5i ghUi gWX 'j cb \ \DETa Uh]cbYb ']gh"$

6YXYi hi b['i bX': c`[Yb ZØf X]Y'; Ya Y]bgWX UZh

8]Y 'gW\ bY``Y '@Ògi b['XYg': U``g'\ Uh'b]W\ h'bi f'X]Y': Ua]`]Y 'XYf
VYhfc ZZYbYb': fUi 'VYfi \][hz'gc bXYfb 'nY][h'Ui W\ 'XYf'[YgUa hYb
GhUXh'; fY]Zgk U`Xz'XUgg'a Ub']b 'gW\ k]Yf][Yb 'NY]hYb
ni gUa a YbghY\h'' '9g'[]Vh'XYf'; Ya Y]bgW\ UZh'Y]b'[i hYg'; YZØ\``XYf
G]W\ Yf\Y]h'i bX'Yf]bbYfh'i bg'XUfUbz'k]Y 'k]W\ h]['Yg']ghz
Ui Za Yf_gUa 'i bX'\]`ZgVYfY]h'ni 'gY]b'''Gc`W\ Y' '9fZU\fi b[Yb'ZÒfXYfb
XYb'Ni gUa a Yb\U`h'i bX'gh\Af_Yb'XUg'J YfhfUi Yb'nk]gW\ Yb'XYb
6Øf[Yfb'i bX'XYb'G]W\ Yf\Y]hgVY\ ÒfXYb''

9]b 8 Ub_ XYf Dc`]nY] Ub X]Y 6Øf[Yf

± Y]bYf'cZ]n]Y``Yb'A]hhY]`i b['VYXUb_hY'g]W\'X]Y'Dc`]nY]'VY]'XYf
6Yj Ò`_Yfi b['i bX'XYb'A YX]Yb'ZØf'XYfYb'I bhYfghØhni b['i bX'X]Y
Y]b[Y[Ub[YbYb'<]bk Y]gY"8]YgY'K YfhgW\Ahni b['nY][hž'XUgg'X]Y
Ni gUa a YbUfVY]h'nk]gW\Yb'XYb'6Øf[Yfb'i bX'XYf'Dc`]nY]'j cb
[fc»Yf'6YXYi hi b[']gh"'G]Y'gW\UZZh'Y]b'ghAf_YfYg
; Ya Y]bgW\UZhg[YZØ\`'i bX'`AXh'XUni 'Y]bž'Ui W\']b'Ni _i bZh'U_h]j
ni f'G]W\Yf\Y]h'VY]ni hfU[Yb"

8 Yf'J cfZU``YbXYh']b'Y]bYa 'dcg]h]j Yb'@]W\h'i bX'`Àggh'FUi a 'ZØf'X]Y < c ZZbi b[ž'XUgg'gc`W\Y'?ccdYfUh]cbYb']b'XYf'Ni _i bZh'k Y]hYf\]b j cb'9fZc`['[Y_fÒbh'gY]b'k YfXYb"'8]Y'5i Z_`Àfi b['i bX'XYf'9]bgUhn ni f'G]W\Yf\Y]h'g]bX'b]W\h'bi f'Y]bY'5i Z[UVY'XYf'Dc`]nY]ž'gcbXYfb YfZcfXYfb'X]Y'U_h]j Y'HY]`bU\a Y'U``Yf'A]h[`]YXYf'XYf ; Ya Y]bgW\UZh"

8 Y hU]`q

6Ygi WXYb G]Y i bg Ui Z b!U["XY