

I f`Ui VghfU[ÒX]Y'Ub'XYf'CghgYY. +,!À\f][Yf'Ui g'6Yf`]b'hch'[YVcf[Yb

9]b'+, !'À\f][Yf'I f`Ui VYf'Ui g'6Yf`]b'k i fXY'hch'Ui g'XYf C ghgYY'VY]'8]Yf\U[Yb'[YVcf[Yb"'?Y]bY'<]bk Y]gY'Ui Z : fYa Xj YfgWXi `XYb"

Jcf'Cfh'k Ufini ZÀ``]['Y]bY'Ÿfnh]b'Ubk YgYbXž'X]Y'gcZcfh'j Yfgi WkhYž XYb'I f`Ui VYf'k]YXYfni VY`YVYb"'Hfchn']\fYf'6Ya Ø\i b[Yb'i bX'XYf gWkbY``Yb'5bZcfXYfi b['Y]bYg'BchUfnhYg'_cbbhY'bi f'bcWk'XYf'HcX ZYgh[YghY``h'k YfXYb"'8]YgY'YfgWkfYW_YbXY'9bhXYW_i b['gcf[h'ZØf h]YZY'HfUi Yf'i bhYf'XYb'5bk YgYbXYbž'XYbb'g]Y'j YfXYi h`]Wkh'X]Y; YZU\fYb'XYg'K UggYfg'i bX'X]Y'I bVYfYWkYbVUf_Y]h'XYf'BUhi f"

=XYbh]hÀh XYg J YfghcfVYbYb i bX 9fa]hh`i b[Yb

8]Y = XYbh]hÀh:XYg:JYfghcfVYbYb:a i gghY:ni bÀWXgh:[Y_`Àfh:k YfXYbž XU:XYf:A Ubb:_Y]bY:5i gk Y]gdUd]YfY:VY]:g]WX:\UhhY":8]Y:Dc`]nY] ghY``hY:'YXcWX:gWXbY```ZYghž:XUgg:Yg:g]WX:i a :Y]bYb:6Yf`]bYf I f`Ui VYf'\UbXY`hYž:XYggYb:: Ua]`]Y:]bZcfa]Yfh:k i fXY":8Yf:JcfZU`` ZUbX:Ua :GhfUbXUi Z[Ub[:%+:ghUhhž:Y]bYa :VY`]YVhYb:Cfh:ZØf Hci f]ghYbž:X]Y:X]Y:CghqYY:[Yb]Y»Yb:k c``Yb"

$$\begin{split} 9g`[\]Vh`XYfnY]h'_Y]bYf`Y]`<]bk\ Y]gY`Ui\ Z`Y]b`:fYa\ Xj\ YfgWki\ `XYb"\\ 8\]Yg``Aggh`FUi\ a\ `ZØf`GdY_i\ `Uh]cbYb``ØVYf`X]Y`I\ a\ ghAbXYž`X]Y`ni\\ X]YgYa\ `hfU[\]gWkYb`9fY][\ b]g`ZØ\ fhYb"`K\ Uf`XYf`A\ Ubb\\ a\ O[\ `]WkYfk\ Y]gY`Ui\ g`[\ Ygi\ bX\ Y]h`]WkYb`;\ fØbXYb`]b\\ GWk\ k\]Yf][\ _Y]hYb`[\ YfUhYbž`cXYf`gd]Y`hY`Y]bY`UbXYfY`I\ fgUWkY`Y]bY\\ Fc``Y3`Gc`WkY`:fU[\ Yb`V`Y]VYb`j\ cfYfghii\ bVYUbhk\ cfhYhii\ bX`fØW_Yb\\ X]Y`K\]Wkh][\ _Y]h'j\ cb`K\ UggYf`G]WkYf\ Y]hgj\ cf_Y\fi\ b[\ Yb`]bg\\ FUa\ dYb`]Wkh"\\ \end{split}$$

8 Yf'J cf[Ub[`\ Uh'Ui W\ XUg'6Yk i gghgY]b 'ZØf'X]Y 'G]W\ Yf\Y]h'Ua K UggYf'[YgW\ ÀfZh" \D XYb 'Gca a Yfa cbUhYbž'k c'j]Y `Y 'A YbgW\ Yb Ub 'X]Y '? ØghY 'fY]gYbž'k YfXYb 'K Ufbi b[Yb 'j cf'XYb'; YZU\fYb 'XYg 6UXYbg'cZh'[Ybi ['][bcf]Yfh" '8]Y 'I bhYfghØhni b['XYf FYhhi b[g_fÀZhY 'i bX 'XUg'K]ggYb'i a 'X]Y 'Y][YbY 'G]W\ Yf\Y]h'g]bX YbhgW\ Y]XYbXž'i a 'gc `W\ Y 'J cfZ\ ``Y'ni 'j Yfa Y]XYb" '9g'k Uf'Y]b Xf]b[YbXYgž'UVYf'V]hhYfYg'@Y\fghØW_'ZØf'U``Yž'X]Y 'Ua 'GhfUbX k UfYb"

8 Yf'J Yf'i gh'Y]bYg'@YVYbg'Ui Z[fi bX'Y]bYg'J cfZU``g']a 'K UggYf']gh hfU[]gWX 'i bX'`Àggh'U``Y'6YhY]`][hYb'bUWXXYb_`]WX 'ni f@W_"'9g'k]fX \]bni [YZØ[hž'XUgg'Ui WX'XYf'I a [Ub['a]h'J Yf'i gh'i bX'HfUi Yfž gck c\``ZØf'X]Y'<]bhYfV`]YVYbYb'U`g'Ui WX'ZØf'X]Y'NYi [Ybž'Y]bY < YfUi gZcfXYfi b['XUfghY``h"'8Yf'GWXcW_'i bX'X]Y'HfUi f][_Y]h a ØggYb'[YhY]`h'k YfXYbž'i a 'XYb'GWXa Yfn'Ui gni \U`hYb'i bX'Y]bYb K Y['ni f'<Y]`i b['ni 'Z]bXYb"

FYZ`YI]cb'ØVYf'X]Y'G]W\Yf\Y]h'Ua'K UggYf

8]Y '9fY][b]ggY ']b '8]Yf\U[Yb 'Yf]bbYfb 'i bg 'XUfUbž'k]Y 'k]W\h]['Yg]ghž'X]Y '; YZU\fYb 'XYg 'K UggYfg 'Yfbgh'ni 'bY\a Yb" G]W\Yf\Y]hgj cf_Y\fi b[Yb '_ObbYb ']a 'BchZU``'@YVYb 'fYhhYbž'gY]'Yg Xi fW\ 'XUg 'HfU]b]b[']b '9fghYf' <]`ZY 'c XYf'Xi fW\ 'X]Y '6YUW\hi b['j cb K Ufb\]bk Y]gYb"'9]b 'gc `W\Yg '9fY][b]g 'Yf]bbYfh'i bg 'b]W\hi bi f'Ub X]Y 'J Yf[Àb[`]W_Y]h'XYg '@YVYbgž'gcbXYfb 'Ui W\ 'XUfUbž'k]Y 'gW\bY``g]W\ 'X]Y '8]b[Y 'AbXYfb'_ObbYb"'8Yf'GhfUbXž'XYf'ZØf'j]Y`Y'Y]bYb FØW_ni [gcfh'XUfghY``hž'_Ubb'Ui W\ 'F]g]_Yb 'VYf[Ybž'X]Y 'b]W\hi bhYfgW\Ahnh'k YfXYb'gc``hYb"

8]Y 'Hfu[OX]Y 'gc``hY 'YXYa 'j cb'i bg'Y]b'A U\ba U``gY]bž'k]Y'k]W\h][
J cfgcf[Ya U» bU\a Yb'g]bX"'8 Ug'5bVf]b[Yb'j cb'GW\]`XYfbž'X]Y'X]Y
6UXYfY[]cbYb'fY[i `]YfYbž'gck]Y'X]Y' \(\frac{1}{2}\) Zcfa Uh]cb'\(\text{O}\)VYf'X]Y
B chfi Zbi a a Yfb'_\(\text{O}\)bbYb'XUni 'VY]hfU[Ybž'XUgg'gc`W\Y
Nk]gW\YbZ\A``Y']b'Ni_i bZh'j]Y``Y]W\h'j Yfa]YXYb'k YfXYb"'8 Ug
5bXYb_Yb'Ub'XUg'\(\text{O}\)YVYb'XYg'+, !'\(\text{A}\)f][Yb'A UbbYg'a i gg']a
_c``Y_h]j Yb'; YX\(\text{A}\)W\hb]g'V`Y]VYb'i bX'U``Y'XUni 'Ui Zfi ZYbž'g]W\'Z\(\text{O}\)f
G]W\\Yf\Y]h'i bX'<]`ZY'VYfY]hni \U`hYbž'k Ybb'Yg'XUfUi Z'Ub_ca a h"

<]bhYf[fi bX]bZcfa Uh]cbYb ni '6UXYi bZÀ``Yb]b'8Yi hgW\`UbX</pre>

6UXYi bZÀ``Yʻg]bXʻ]bʻ8Yi hgW\`UbXʻ`Y]XYfʻ_Y]bYʻGY`hYb\Y]hž
]bgVYgcbXYfYʻk À\fYbXʻXYfʻGca a Yfa cbUhYžʻk YbbʻX]YʻGhfÀbXY
j c```g]bXʻi bXʻj]Y`YʻI f`Ui VYfʻX]Yʻ? ØghYbfY[]cbʻVYgi W\Yb"ʻ8]Y
CghgYYʻ]ghʻVYgcbXYfgʻVY`]YVhžʻYXcW\`V]f[hˈg]Y˙Ui W\`; YZU\fYbž'k]Y
i bYfk UfhYhYʻGhfÒa i b[Ybž'_U`hYʻK UggYfhYa dYfUhi fYbʻi bX`\c\Y
K Y``Yb"ʻ¾XYgʻ¾\\f`[]VhʻYgʻ6Yf]W\hYʻØVYfʻ6UXYi bZÀ``Yž'X]Yʻ\Ài Z][
ni ˈgW\k YfYbʻJ Yf`Yhni b[YbʻcXYfʻgc[Ufʻni a ˈHcXːZØ\fYb"

8 Ug; Ygi bX\Y]hggmghYa ']b'8 Yi hgW\`UbX'g]Y\hi a ZUb[fY]W\Y
A U» bU\a Yb'ni f'DfÀj Ybh]cb'j cb'6UXYi bZÀ``Yb'j cf''' <]Yfni
[Y\ÒfYb'K UfbgW\]`XYf'Ub'GhfÀbXYbž'X]Y'Ui Z'; YZU\fYb'\]bk Y]gYbž
gck]Y'X]Y'6YfY]hghY``i b['j cb'FYhhi b[ggW\k]a a Yfb']b'ghUf_
ZfYei Ybh]YfhYb'6UXYVYfY]W\Yb''' \DZcfa Uh]j Y'? Ua dU[bYb'gc``Yb
XUg'6Yk i gghgY]b'XYf'6UXY[ÀghY'ZØf'X]Y'F]g]_Yb'VY]a 'GW\k]a a Yb
]b'cZZYbYb'; Yk ÀggYfb'gW\AfZYb'''Hfchn'X]YgYf'A U» bU\a Yb'V`Y]VYb
j]Y`Y'I bZÀ``Y'i bj cf\YfgY\VUfž'k Ug'XYb'9fbgh'XYf'@U[Y'XYi h`]W\
a UW\h''

GhUh]gh]_Yb i b X 8 UhYb ni 6 UXYi b ZÀ ``Yb

@Ui h'XYf'8Yi hgWXYb'@YVYbg!FYhhi b[g!; YgY``gWXUZh'f8@F; Ł Yfhf]b_Yb''À\f`]WX']b'8Yi hgWX`UbX'Yhk U'' \$\$'A YbgWXYb']a 'Ni [Y j cb'6UXYi bZÀ``Yb"'8]YgY'NU\``i a ZUggh'gck c\``HcXYgZÀ``Y']a 'A YYf U`g'Ui WX']b'UbXYfYb'; Yk ÀggYfb'k]Y'GYYb'i bX': `ØggYb"'8UfØVYf \]bUi g'k YfXYb'HUi gYbXY'j cb'A YbgWXYb''À\f`]WX'[YfYhhYh'cXYf Yf`Y]XYb`JYf`Yhni b[Yb`VY]a '6UXYb"'8]Y'8@F; 'ZØ\fh`fY[Y`a À»][Ghi X]Yb`Xi fW\'i bX'j YfÒZZYbh`]W\h'GhUh]gh]_Ybž'i a 'X]Y

2 ZZYbh`]W_Y]h`ØVYf`X]Y'; YZU\fYb`VY]a '6UXYb`Ui Zni _`ÀfYb"

8]Y'\Ài Z][ghYb'I fgUW\Yb'ZØf'6UXYi bZÀ``Y'g]bX'I bhYfgW\Àhni b[XYf'Y][YbYb': À\][_Y]hYb'i bX'][bcf]YfhY'K Ufb\]bk Y]gY"8]Yg j YfXYi h`]W\h'X]Y'Bchk YbX][_Y]h'ZØf'5i Z_`Àfi b['i bX G]W\Yf\Y]hga U» bU\a Ybži a 'gc`W\Y'HfU[ÒX]Yb'ni 'j Yf\]bXYfb"'8]Y 8@F; 'ZcfXYfh'XU\Yf'X]Y'_cbh]bi]Yf`]W\Y'GYbg]V]`]g]Yfi b['XYf 6Yj Ò`_Yfi b['ž']bgVYgcbXYfY']b'hci f]gh]gW\'ghUf_'ZfYei Ybh]YfhYb FY[]cbYb"

8 YhU]`q

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