

VYfZcfXYfh'i bX'i bhYfVYnU\`h. ? Y]b
K i bXYfž`XUgg`Ā b[Y`5b`Y[Yf`? fmd hc
`]YVYb

⊕`X]YgYf`?c`i a bY`\UVY`jW`YhnhY`K cWY`XUfØVYf
gdY_i`]Yfhž`k]Y`X]Y`J c`Uh`]hÅh`XYf`5_h]Yba Āf_hY`Øb[YfY
5b`Y[Yf`YfgWk`fYW_Yb`_ØbbhY" `?ca a YbhUfY`j cb`@YgYfb
nk]gWYb`&\$`i bX`' \$`ZcfXYfhYb`YXcW`5bhk cfhYb`Ui ZY]b
UbXYfYg`⊕j Ygh]h]cbgX]`Ya a U" `?ØbbhY`Ya UbX`Ubhk cfhYbž
k]Y`i a `U`Yg]b`XYf`K Y`h`Ā b[Y`@Yi hY`Y]b`<Ui g`_Ui ZYb`I B8
ZØf`XYb`Fi \YghUbX`gdUfYb3 `ZFU[hY`XYf`&&!`Å\`f][Y`GWĉhh
K]UmUh]`U_Y" `J cb`8i hnYbXYb`UbXYfYf`@YgYf`ni a `Hcd!
?ca a YbhUf` [Yk Å\`hž`g_]nn]YfhY`Yfž`k]Y`gY]bY`; YbYfUh]cb
a]h`Ybcfa Yb`Ghi XYbhYbgWk`i`XYbž`\Ø\YfYb`GhYi Yfb`i bX
Y]bYf`J Yfa Ò[YbgV`UgY`_cbZfcbh]Yfh`k Ufž`X]Y`X]Y
⊕a a cV`]YbdfY]gY`Ui » Yf`FY]Wk Y]hY` [YXfØW`h`i bX`X]Y
5_h]YbVYk Yfhi b[Yb`Ui ZY]b`ÅWYf`]W`hYi fYg`B]j YUi
[Yhf]YVYb`\Uh" : Ø[Yb`G]Y`XYa`A]i`Y]b`Ub[gUa Yg
/ Ua d^Y``d/

⊕`X]YgYf`?c`i a bY`\UVY`jW`YhnhY`K cWY`XUfØVYf`gdY_i`]Yfhž`k]Y
X]Y`J c`Uh`]hÅh`XYf`5_h]Yba Āf_hY`Øb[YfY`5b`Y[Yf`YfgWk`fYW_Yb
_ØbbhY" `?ca a YbhUfY`j cb`@YgYfb`nk]gWYb`&\$`i bX`' \$`ZcfXYfhYb
YXcW`5bhk cfhYb`Ui ZY]b`UbXYfYg`⊕j Ygh]h]cbgX]`Ya a U"

?ØbbhY`Ya UbX`Ubhk cfhYbž`k]Y`i a `U`Yg]b`XYf`K Y`h`Ā b[Y`@Yi hY
Y]b`<Ui g`_Ui ZYb`I B8`ZØf`XYb`Fi \YghUbX`gdUfYb3 `ZFU[hY`XYf
&&!`Å\`f][Y`GWĉhh`K]UmUh]`U_Y"

J cb`8i hnYbXYb`UbXYfYf`@YgYf`ni a `Hcd!?ca a YbhUf` [Yk Å\`hž
g_]nn]YfhY`Yfž`k]Y`gY]bY`; YbYfUh]cb`a]h`Ybcfa Yb
Ghi XYbhYbgWk`i`XYbž`\Ø\YfYb`GhYi Yfb`i bX`Y]bYf`J Yfa Ò[YbgV`UgY
_cbZfcbh]Yfh`k Ufž`X]Y`X]Y`⊕a a cV`]YbdfY]gY`Ui » Yf`FY]Wk Y]hY

[YXfØW_hi bX`X]Y`5_h]YbVYk Yfhi b[Yb`Ui Z`Y]b`ÅWYf`]W`hYi fYg
B]j YUi` [Yhf]YVYb` \Uh"

: Ø[Yb`G]Y`XYa`A]l`Y]b`Ub[gUa Yg`@c`bk UW`ghi a`i bX`Y]bY
ghY][YbXY` [`cVU`Y` ðZUh]cb` \]bni ži` bX`Gw`h`VY`ZØfW`hY`ž`XUgg`XUg
hfUX]h]cbY`Y`* \$. (\$!DcfhZc`]cž`Ui Z[YhY`h`]b`5_h]Yb`i bX`5b`Y` \Ybž
b]W`h`a` Y`f`Ui` gfY]W`Yb`k`]fX.` K`]Y`_ØbbYb`G]Y`a`]h`gc`b]YXf][Yb
F YbX]hYb`Y`hk` Ug`Ui` ZVUi` Ybž`XUg`Y]bYa` J`Yfa` Ø[Yb`Å`b`Y`h3`

: Øf`j`]Y`Y`↑` b[Y`5b`Y` [Yf`VYghUbX`X]Y`5b`hk` cfh`XUf]bž`Ui` Z
f]g]_cfY]W`YfY`5b`U[Yb`ni` `gY`hnYb"

@Ui`h`Y]bYf`l` bhYfgi` W`i` b[`XYf`:]bUbW]U`7`cbXi` W`5i` h` \cf]hm`]b
X]YgYf`K` cW`Y` \UVYb`a` Y`f`U`g`Y]bY`A`]`cb`9fk` UW`gYbY`]a
J`YfY]b][hYb`?`Øb][fY]W`k` Å`fYbX`XYf`DUbXYa`]Y`f]g]_cfY]W`Y
5b`U[Yb`k`]Y`?`fmd`hc` [Y`_Ui` Zh`cXYf`] \fY`6Ygh`ÅbXY`Yf`Ø`h`

5b[Yg]W`hg`VY` [fYb`nhYf` ðj` Ygh]h]cbga`]hY`i` bX`ghY][YbXYf
J`Yfa` Ø[Ybgd`fY]gY`_ØbbYb`G]Y`XYb`F`Y]n`Yf`_YbbYbž`Ui` Z`f]g]_cfY]W`Y
J`Yfa` Ø[Ybgk`Yf`hY`ni` `gY`hnYbž`]b`XYf`<`c`Zb`i` b[ž`XYb` ÷W`_dch`ni
_bUW`Yb"

?fmd`hc`ž`DY`Yf`!`hc`!DY`Yf`i` bX`X]Y`J`Yfk`YbXi` b[`j`cb`HfUX]b[!5ddg`i` bX
Gd`fYUX]6Y`h]b[!D`Uh`hZc`fa` Ybž`i` a` `i`fnZf]gh][`Ui`Z`5_h]Yb`i` bX
8Yj`]gYb`ni` `gY`hnYbž`g]bX`b`Å`Yf`Ua` `;` ØW`ggd]Y`U`g`Ua` ` ðj` Ygh]YfYb
`UVYf`Ub[Yg]W`hg`XYf`:`i` » [Åb[YffYbX]hYb`UbXYfgk`c`g]bX`↑` b[Y
A`YbgW`Yb`j`Yfgi` W`hž`Y]b` `5`Yg`cXYf` `ni` `bY`a` Yb`b]W`hg` `5bgU`h"

GY`Vgh`X]Y`Yb][Ybž`X]Y`Ui`Z`hfUX]h]cbY`YfY`K`Y]gY`]bj`Ygh]YfYbž
VYk`Y[Yb`g]W`Ui`Z`XYf`F`]g]_c`_i`fj`Y`bUW`c`VYb`"A`]W`UY`ž`Y]b`:`H!
?ca`a`Yb`hU`hf`]b`XYb`Nk`Ubn][Yfbž` \Uh`X]Y`Y`h`hYb`%,`A`cb`UhY
XUa`]h`j`YfVfUW`hž`Y]b`hYW`bc`c`[]Y`Ugh][Yg`DcfhZc`]c`Ui`Zni`VUi`Yb`"
8Ug`]Y`Z`ni`b`ÅW`gh`[i`hž` \Uh`UVYf`]b`XYb`Y`h`hYb`A`cb`UhYb`[Y`]h`hYb`.
`W` \UVY`Y]b`d`UUF`8`]dg`[Y`_Ui` Zh`UVYf`X]Y`8`]dg`_Ua`Yb`]a`a`Yf
k`]YXYf"

5i`W` \]Yf`k`i`fXY`X]Y`Ub[Zf]gh][Y`6YhfUW`hi`b[`Xi`fW`gY]bY`VY]XYb
N]Y`Y`YfgW`k`Yf`hž`gck`c` \`ZØf`Y]bY`<`Ui`g`_Ui`h]cb`U`g`Ui`W`ZØf`XYb

Fi \YghUbX'ni]bj Ygh]YfYb'fMYUWkhYb'G]Yž'XUgg'X]Y
Xi fWkgWb]hh]WXY'9fgh_Ài ZYf_Ui h]cb'Yhnh'ØVYf') + "\$\$\$'v'VYhfÀ[h
i bX'a Y\ f'U'g'XcddY'h'gc'\cW']gh'k]Y']b'@cbXcbŁ'"''

5bghUhh'gck c\'']b' ða a cV']]Yb'U'g'Ui W']b'XYb'Fi \YghUbX
ni]bj Ygh]YfYbž'k À\`Yb'j]Y'Y'† b[Y'6Yfi ZghÀh][Y'Y]bY'U'g
N]Y'Ui g''8]Y'9bhgWXY]Xi b[ž'k Y`WY'Df]cf]hÀhYb' [YgYhnh
k YfXYb'gc''Ybž']gh'gWk]Yf][

9]bY'f]g_UbhY'GhfUHY []Yž'UVYf'X]Y'8Ui Yf'XYg'GdUfYbg''Àggh
6Uf[Y'X'XYf'ghY][YbXYb' ðZUh]cb'Ui g[Y']YZYfh''8]Y'FY []Yfi b[
ZØfXYfh'X]YgYb'K Y['gh]'`gWk Y][YbX'a]h'XYa '@]ZYh]a Y' ðUž'XYf
Y]bYb'&) !dfcnYbh][Yb'6cbi g'Ui Z[YgdUfhYg'cXYf']b'Y]bY
9fgh]a a cV']]Y']bj Ygh]YfhYg'; Y'X'V]YhYh'fUWkhYb'G]Y'Ui ZX]Y
ða a cV']]YbdfY]gcVYf[fYbnY'j cb' () '\$\$\$'v'Ł'"''

5bghUhh'gck c\'']b' ða a cV']]Yb'U'g'Ui W']b'XYb'Fi \YghUbX'ni
]bj Ygh]YfYbž'k À\`Yb'j]Y'Y'† b[Y'6Yfi ZghÀh][Y'Y]bY'U'g'N]Y'Ui g''9g
]gh'gWk]Yf]['ni'YbhgWXY]XYbž'k Y`WY'Df]cf]hÀhYb' [YgYhnh'k YfXYb
gc''Ybž'UVYf'ni a]bXYgh'\UVYb'g]Y'X]Y'K U\''': Øf'j]Y'Y'† b[Y
5fVY]hbY\ a Yf'a]h'b]YXf][YfYa '9]b_ca a Yb']gh'X]Yg
a Ò[']WYfk Y]gY'_Y]bg'j cb'VY]XYa ž'XU'X]Y '@YVYbg\U'hi b[g_cghYb
k Y]hYf'g]b_Yb"

8]Y'Øb[ghY'9bhgWXY]Xi b[ž'X]Y'F ØW_nU\`i b[ggWk Y''Y'ZØf
Ghi XYbhYbXUf'Y\Yb'VY]'&+'&-) 'v'Y]bni Zf]YfYbž'k]fX'5Vgc'j YbhYb
bUW'&\$%&']b'9b[`UbX'i bX'K U'Yg'ni gÀhn`]WY'%%\$'v'dfc'đ\ f
_cghYbž'ni gÀhn`]W'ni'XYb'9f\Ø\i b[Yb'XYf'Gcn]U'j Yfg]WYfi b["'

9g[UV'_Y]b'K cfhj cb'6YUa hYb'XUfØVYfž'k Ubb'X]Y'J YfV]bXi b[
a]h'XYb'9]bbU\ a Yb'k]YXYf'\Yf[YghY''h'k YfXYb'_ØbbhY''5i Z[fi bX
XYf': i b_h]cbgk Y]gY'XYg'GmghYa g'k YfXYb'gW'Àhni b[gk Y]gY'XfY]
J]YfhY'XYf'<cWkgW'i UVgc'j YbhYb']\fY'GW'i'XYb'b]Ya U'g

j c`ghÅbX][`ni fØW_nU\`Yb"GhUhhXYggYb`nU\`Yb`g]Y` \$`Å\ fY`Ub[
Y]bY`ni gÅh`]WY`GhYi Yf`j cb`-`DfcnYbh`Ui ZU`Ygž`k Ug`g]Y`ØVYf`XYf
GWk Y`Y`j YfX]YbYbž`V]g`]\fY`?fYX]hY`UV[YgWkf]YVYb`g]bX`"

: Øf`5Vgc`j YbhYbž`X]Y`; fi bXghYi YfnU\`Yf`g]bXž`k]fX`YXYg`DZ bXž
XUg`g]Y`ØVYf`X]YgYf`Y]b[YZfcfYbYb`GWk Y`Y`UV`5df`]`j YfX]YbYbž
a]h`(&ž&) `DfcnYbh`VYghYi Yfh`fØ]b_ca a YbgghYi Yf`j cb`&\$`DYbWž
Gcn]U`j Yfg]WYfi b[`j cb`%` ž&) `DYbW`i bX`k Y]hYfY`-`DYbW`ni f
FØW_nU\`i b[`XYg`8Uf`Y\Ybg`"

: Øf`X]Y`Yb][Ybž`X]Y`Yg`g]W`Y]ghYb`_ØbbYbž`Ui Z`X]Y
= a cV`]Yb`Y]hYf`ni `_ca a Yb`fX]Y`a Y]ghYb`a]h`Y`hYf`]WYf`<`]ZYž
]gh`XYf`5i Zgh]Y[`XYf`(\$!`Å\ f][Yb`<mdch\Y`_Y]b`k Y]hYfYf
; YbYfUh]cbgk YWgY`"

A UhhWUž`Y]b`: H!@YgYf`5bZUb[`` \$ž`[YghUbXž`XUgg`Yf`X]Y`F YbX]hYb
XYf`bXYI`!HfUW`Yf`]b`gY]bYa``gU`UV[YgW`ØdZhi bX`X]YgY`ni f
` VYfnU\`i b[`gY]bYg`K c\bi b[gVUi XUf`Y\Ybg`j Yfk YbXYh`\UhhY`"9f
bU\`a`ZØf`X]YgY`f]g]_cgWYi Y`GhfUHy[]Y`?f]h]_`Ui Z`g]Wž`UVYf`XYf
N]bgUbgh]Y[`X]YgYf`K cWY`Yf]bbYfh`i bg`XUfUbž`XUgg`X]Y`Y`fU`XYg
V]`][Yb`; Y`XYg`b]W`h`Yk][`XUi Yfb`_Ubb`"

8Yf`Z]bUbn]Y`Y`æb[`]YfU`_h`k]fX`Xi fW`X]Y`\c\Yb`?cghYb`ZØf`X]Y
; fØbXi b[`Y]bYf`: Ua`]]Y`k Y]hYf`YfgWk Yfh`fVYUW`hYb`G]Yž`XUgg`X]Y
<`Å`Zh`XYf`: fUi Yb`]b`9b[`UbX`i bX`K U`Yg`ja` `5`hYf`j cb`" \$`Å\ fYb
_Y]bY`?]bXYf`\Uh`"

: H!@YgYf`HYbW`Z]bXYh`Yg`i ba Ø[`]Wž`ØVYf`Ui dh`Yhk Ug`ni `gdUfYbž
gY]h`Yf`?]bXYf`\Uh` `8]Y`?]hU!; YVØ\ fYb`j YfvfUi WYb`XUg`a Y]ghY
j YfZØ[VUfY`#]bj Ygh]YfvUfY`9]b_ca a Yb`"``"i bgYf`Fi \YghUbX
gWY]bh`Y]b`ÅWYf`]W`ZYfbYf`HfUi a`ni `gY]b`"

æb[ghY`: cfgWki b[gYf[YVb]ggY`XYg`bgh]hi hY`Zcf`:]gWU`Ghi X]Yg
[YVYb`5b`Ugg`ni f`<cZbi b[`i bX`XYi hYb`XUfUi Z`\]bž`XUgg
X]Y`Yb][Ybž`X]Y`X]Y`5`hYfgj cfcf[Y`]b`]\fYb`" \$Yfb`fYXi n]YfYbž
UVYf`%) `V]g`&) `DfcnYbh`XYg`; Y\U`hg`]b`]\fYb`(\$Yfb`i bX`) \$Yfb
VY]hfU[Ybž`]a` ; fc»Yb`i bX`; UbnYb`XUg[`Y]WY`9f[YVb]g`Yfn]Y`Yb
_ØbbhYb`"

9]bY'gUZh][Y'Gi a a YžUVYf'X]Y'≠ G!; f0bXY'Z0f'\0\YfY'; Y\À'hYf
i bX'XUg'5VZUi Yb'XYf'?]bXYfVYhfYi i b[g_cgYb'a UWXYb'Yg
a 0['jW'"8U'Ghi X]YbXUf'Y\YbggWxi 'XYb'bUW'" \$'đ\YfYb
UV[YgWf]YVYb'k YfXYbž'_0bbhYb'<cWgWxi 'UVgc'j YbhYb'5bZUb[
) \$'XUni '[YVfUW'h'k YfXYbž'X]YgY'-'DfcnYbh']\fYg'; Y\U'hg
ghUhhXYggYb'j]b'Y]bYf'F YbhY'ni 'gdUfYb''

8 Ug'ghÀbX][Y': i a a Y'b'Ub'FY[Y'i b[Yb'ni f'FYbhY'i bX'ni a '6UZ0[!
GmghYa 'j Yfi ba 0['jW'h'XYb'† b[Yb'A YbgWYb'YXcW
D'Ubi b[gg]WYf\Y]h''

9g'[]Vh'_Y]bY'; UfUbh]Y'XUZ0fž'XUgg'X]Y'' \$!đ\YfYg!; fYbnY'j]b
Ni _i bZn'b]W'hj Yf'Àb[Yfh'k]fX'"8Uf0VYf'\]bUi g'k YfXYb'@YgYfž'X]Y
g]W'a]h'XYa '5'VhfUi a 'XYf'À\f']WYb'?0fni b['XYf'Ni 'U[Y
Ui gY]bUbXYfgYmYb'fX]Y'XUgž'k Ug'6YggYfj YfX]YbYf'Z0f'Y]bY'F YbhY
gdUfYb'_0bbYbž'j cb'(\$"\$\$\$'v'Ui Zbi f'("\$\$\$'v'dfc'đ\f'U''a À\]W
fYXi n]YfYbž'0VYf'X]Y'≠YY''UWYbž'\fY'6Y]hfÀ[Y'ja 'gdÀhYfYb
@YVYb'ni 'Yf\0\Yb''

I bX'k Ybb'≠fY'5fVY]h[YVYfVY]hfÀ[Y'ni f'5'hYfgj c'fgcf[Y
[fc»n0[][Yf'g]bX'U'g'X]Y'j]b'XYf'≠ G!Ghi X]Y'Ub[Ybca a YbYb
; fi bXk YfhYž'_0bbhYb'G]Y'ni gUa a Ybni W_Ybž'k Ybb'G]Y'X]YgYg
; Y'X'Ui Z'XYa 'H]gW''jY[Yb''UggYb''J Yf[YggYb'G]Y'b]W'hž'XUgg
F YbhYb'Y]bY'k Yfhj c''Y'E i Y''Y'Z0f'GhYi YfYf'Y]W'hYfi b[Yb'g]bX'
i bX'XUni '[Y\0fh'Ui W'X]Y' 5Vgc'j YbhYbghYi Yf' j cb
Ghi XYbhYbXUf'Y\Yb''

8 YfnY]h'k YfXYb'bi f'X]Y'6Yghj YfX]YbYf'\fY'[YgUa hYb
Ghi X]YbXUf'Y\YbggWxi 'XYb'j]bbYf'U'V'j cb'' \$'đ\YfYb'UVhfU[Yb''
5Vgc'j YbhYb'a]h[Yf]b[YfYa '9]b_ca a Ybž'X]Y'Y]bY'?Uff]YfYdUi gY
Y]b'Y[Yb'cXYf'HY]'nY]h'UfVY]hYbž'k À\YbX'g]Y'Y]bY': Ua]'jY
[f0bXYbž'hi b'X]Yg'j]Y'gY'hYbYf' i bX'XYf'≠ G'a UW'h'Y]bYb
k]W'h][Yb'Di b_h'Z0f'g]Y''

K Ybb'≠f'5fVY]h[YVYf'; Y\U'hgj Yfn]W'h !FY[Y'i b[Yb'UbV]YhYhž
\UVYb'G]Y'Y]bYb'ni gÀm`]WYb'5bfY]nž']b'X]Y'F YbhY'ni 'gdUfYb''8U
X]Yg'ni 'Y]bYf'J Yff]b[Yfi b['≠fYg'6fi hhcY]b_ca a Ybg'Z0f'hž'k]fX
Ui W'XYf'6YhfU['j Yff]b[Yfhž'XYf'Xi fW'X]YgY'-'!dfcnYbh][Yb

F ØW_nU\`i b[Yb`XYg`Ghi XYbhYbXUf`Y\Ybg`UV[YgW\`b]hhYb`k]fX" ` ð
XYb`K cfhYb`XYg`≠ G`]gh`X]Yg` UbU`c[`ni f`FYXi n]Yfi b[`≠fYf
[YgUa` hYb`YVYbg`Ub[Yb`GhYi YfgW\`i `X` "

Gc` \`]ZfY]W\`X]YgY`5bfY[i b[Yb`ZØf`a UbW\`Y`↑ b[Y`@YgYf]bbYb`i bX
@YgYf`Ui W\`gY]b`a Ò[Ybž`X]Y`]a a Yf`[fØ»Yf`k YfXYbXY`?`i Zh
nk]gW\`Yb`XYb` ; YbYfUh]cbYb`VYXYi hYh`ZØf`X]Y`a Y]ghYbž`XUgg`Yg`Ub
XYb`F`ÀbXYfb`\Yfi a Z` a a Y`h` `XcW\`X]YgY`5fh`j cb` B]j Y``]Yfi b[
ghY`h`b]W\`h`Ui Z`XYf`dc`]h]gW\`Yb`5[YbXU"

8 Ug`Y`hnhY`K cfh`ØVYf`UggY`]W\`XYa` &&!`À`f][Yb`GW`h" ` <cZYb
↑ b[Y`@Yi hY`bi f`Ui Z`XUg`9fVY`cXYf`XYb`_Yb`g]Y`Y]bZUW\`b]W\`h
XUfUb3`≠W\`k YhhY`Ui Z`@YhhYfYg" `

7`UYf`6UffYhh`]gh`XYf`J YfVfUi W\`YffYXU`_hYi f`XYf
: H. `WUYf`VUffYhh4 Zh`W`a` /Hk]hhYf`4 7`YUfV`/` ðghU[fUa` `4 7`YUfV

E i Y`Y. :]bUbW]U`H]a Yg

8YhU]`g

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