

? Uff]YfYa Ò[`]Wk_Y]hYb`VY]`XYf`Dc`]nY].
=b Zc UVYbX`]b`< Ua Y`b`i bX`<c`na]bXYb

8]Y`Dc`]nY]]bgdYWh_h]cb`"ÀXh`Ua` ("`GYdhYa VYf`&\$&(`ni
Y]bYa` `b Zcfa Uh]cbgUVYbX`ØVYf`XYb`Dc`]nY]VYfi Z]b`< Ua Y`b
i bX`<c`na]bXYb`Y]b"

=b`XYf`FY[]cb`<Ua Y`b!Dmfa cbhi bX`<c`na]bXYb`ÒZbYh`X]Y`Dc`]nY]
K YgYfVYf[`UbX`Ua`A]hkc cWk`ž`XYb`\$("`GYdhYa VYf`&\$&(ži a`%,
I`f`]\fY`HØfYb`ZØf`U`Y`ž`X]Y`g]Wk`ZØf`Y]bY`? Uff]YfY`VY]`XYf`Dc`]nY]
]bhYfYgg]YfYb" `ž b[Y`A YbgWkYb`]a`5`hYf`nk]gWkYb`ZØbZnY`b`i bX
XfY]» [`š\`fYb` \ UVYb`X]Y`A Ò[`]Wk_Y]hž`Y]bYb`9]bV`]W_`]b`XYb
Dc`]nY]!5`hU[`ni`Yf`U`hYb`i bX`g]Wk`ØVYf`j YfgWk]YXYbYb`5gdY`hY
XYg`Dc`]nY]X]YbghYg`ni`]bZcfa]YfYb"

8]Y`J YfUbghU`hi b[`k]fX`]b`XYb`8]YbghghY`Yb`]b`< Ua Y`b`i bX
<c`na]bXYb`Xi fWk [YZØ`fh`i bX`gc`Y]bYb`i a ZUggYbXYb` , VYfV`]W_
ØVYf`X]Y`5bZcfXYfi b[Yb`i bX`7`UbWk`b`]a`Dc`]nY]VYfi ZV]YhYb"
8 UVY]`k]fX`VYgcbXYfg`Ui ZXUg`Ghi X]i a`Ub`XYf`Dc`]nY]U`UXYa]Y
B]YXYfgUWk`gYb`Y]b[Y[Ub[Ybž`k Y`WkYg`XfY]`š\`fY`XUi Yfhi bX`Ub
a Y`fYfYb`GhUbXcfhYb`k]Y`< Ubb" A ØbXYbž`B]YbVi f[`i bX
C`XYbVi f[`Ub[YVchYb`k]fX"

8]Y`6YXYi hi b[`XYf`J YfUbghU`hi b[

8]Y`9]b`UXi b[`ni f`J YfUbghU`hi b[`]gh`ZØf`j]Y`Y`=bhYfYgg]YfhY`Y]bY
k Yfhj`c`Y` ; Y`Y[Yb`Y]hž`i a`X]fY`_hY`=bZcfa Uh]cbYb`Ui g`YfghYf
<UbX`ni`Yf`U`hYb" B]Wk`h`bi f`5V]hi f]YbhYbž`gcbXYfb`Ui Wk
FYU`gWk`Ø`Yf`_ØbbYb`g]Wk`Ui Z`Y]bYb`9]bghY`i b[ghYghj`cfVYfY]hYbž
k Ug`g]Wk`YfghY`hž`XUgg`Y]b`VfY]hYfYg`GdY`hfi a`Ub`6Yk YfVYfb
Ub[YgdfcWkYb`k]fX" 8]Y`Dc`]nY]`gi Wk`h`bUWk`↑ b[Yb`HU`YbhYbž`i bX
X]Y`J YfUbghU`hi b[`gc`Y`ZYbž`X]YgY`ni` [Yk]bbYb" 8]Y`HY]`bY`a Yf

k YfXYb`]b`XYf`@U[Y`gY]bž: fU[Yb`ni`ghY`Yb`i bX`YfZU\ fYbY
Dc`]nY]VYUa hY`X]fY`_h`ni`_`cbhU`_h]YfYbžk Ug`Y]bYb`Ybcfa Yb`J`cfhY]`
VY]`XYf`9bhgWY]Xi b[gZ]bXi b[`XUfghY`h`"

6YgcbXYfg`\Yfj`cfni` \YVYb`]ghž`XUgg`XUg`6Yfi` ZgZY`X`XYf`Dc`]nY]
b]W`h`bi`f`]a` `9]bgUhm!`i` bX`GhfY]ZY`bX]Ybgh`gdUbbYbXY
A`Ò[`]W`_Y]hYb`V]YhYhž`gcbXYfb`Ui` W`D`Uhm`ZØf`gdYn]Y`Y`9]b\Y]hYb
k`]Y`X]Y`F`Y]hYfghUZZY`c`XYf`X]Y`8]Ybgh\i` bXYZØ\ fYf`VYfY]hghY`h`"8`Ug
k`]fX`g]W`Yf`j`]Y`Y`↑`b[Y`A`YbgW`Yb`Ub`gd`fY`W`Yb`ž`X]Y`j`cb`Y]bYf
UVk`Y`W`g`i`b[g`fY]W`Yb`i`bX`\`YfUi`gZc`fXYfbXYb`?`Uff]YfY`hf`À`i`a`Yb`"

Ni`g`À`h`n`]W`ni`XYf`<`Ui`dhj`YfUbghU`hi`b[`Z]bXYh`Ua` `8]YbghU[ž`XYb
\$`" `GYdhYa`VYf`&\$&(ž`i`a` `%`-`.\$`\$`i` \`f`Y]b`9`hYfbUVYbX`ghUhm`<`]Yf
_`ÒbbYb`9`hYfb`j`cb`]bhYfYgg]YfhYb`6Yk`YfVYf]bbYb`i`bX`6Yk`YfVYfb
:`fU[Yb`ghY`Yb`i`bX`g]W`Y]b[Y\YbXYf`ØVYf`X]Y`A`Ò[`]W`_Y]hYb`i`bX
<`YfUi`gZc`fXYfi`b[Yb`XYg`Dc`]nY]VYfi`Zg`]bZcfa`]YfYb`"8]Y`X]fY`_hY
?`ca`a`i`b]_`Uh]cb`a`]h`U`_hi`Y`Yb`Dc`]nY]VYUa`hYbž`X]Y`]`fY
9fZU\`fi`b[g`VYf]W`hY`hY]`Ybž[`]Vh`XYb`9`hYfb`Y]bY`k`Yfhj`c`Y`Y
DYfgdY`_h]j`Y`i`bX`X]Y`A`Ò[`]W`_Y]hž`]`fY]:`fU[Yb`ni`_`_`À`fYb`"

5ba`Y`Xi`b[`i`bX`?`cbhU`_h]bZcfa`Uh]cbYb

I`a`X]Y`J`YfUbghU`hi`b[`cdh]a`U`ni`cf[`Ub]g]YfYbžk`]fX`i`a`Y]bY
5ba`Y`Xi`b[`V]g`ni`a` ` \$`"5i`[`i`gh`&\$&(`[`YVYhYb`" `b`hYfYgg]YfhY
_`ÒbbYb`g]W`dYf`9!`A`U]`Ub`bUW`k`i`W`g[`Yk`]bbi`b[`4`d]!
\`a`"dc`]nY]"b]YXYfgUW`gYb`XY`k`YbXYb`"8`UVY]`gc`hYb`g]Y`X]Y
6YhfY`ZnY]`Yb` `5VYbX`XYf`6Yk`YfVYbXYb` `<`Ua`Y`b`c`XYf
<`c`na`]bXYb`c`XYf`9`hYfbUVYbX`<`Ua`Y`b`c`XYf`<`c`na`]bXYb
j`Yfk`YbXYbž`i`a` `]\`fY`5ba`Y`Xi`b[`ni`_`Yb`bnY]W`bYb`"

:`Ø`F`ØW`_ZfU[Yb`ghY\Yb`X]Y`?`cbhU`_h]bZcfa`Uh]cbYb`XYf
Dc`]nY]]bgdY`_h]cb`<`Ua`Y`b!`Dmf`a`cbh`#`<`c`na`]bXYb`VYfY]h`"9g`]gh`Y]bY
[`i`hY`;`Y`Y[`Yb\Y]h`ZØf`X]Y`Yb][`Ybž`X]Y`Y]bY`?`Uff]YfY`VY]`XYf`Dc`]nY]
]b`6YhfUW`h`n]Y\Ybž`U`Y`b`c`h`k`YbX][`Yb`b`Zcfa`Uh]cbYb`ni`g`Ua`a`Y`b
i`bX`g]W`Ui`Z`a`Ò[`]W`Y`6Yk`YfVi`b[Yb`j`cfni`VYfY]hYb`"8]Y`Dc`]nY]
XYf`F`Y[`]cb`nY][`h`X`Ua`]h`_`Ufž`XUgg`g]Y`b]W`h`bi`f`Ui`Z`XYf`Gi`W`Y
bUW` :`UW`_f`À`ZnYb`]ghž`gcbXYfb`Ui`W`d`fc`U`_h]j`a`]h`XYf`ž`[`YbX
_`ca`a`i`b]n]Yfhi`bX`g]Y`Ub`XYb`Dc`]nY]VYfi`Z`\`YfUb`ZØ\`fh`"

8]Y'6YfY]hgWUZh': fU[Yb'ni 'VYUbk cfhYb'zi bX'XYf'Ni [Ub['ni
=Zcfa Uh]cbYb'Ui g'YfghYf'< UbX'k YfXYb'g]WYf'W'XUni 'VY]hfU[Yb'z
Y]b'dcg]hj Yg'6]'X'j ca 'Dc`nY]VYfi Zni 'j Yfa]hhY'b" '8]YgY' =b]h]Uh]j Y
_ObbhY'XYb'YfghYb'GW'f]hh'Zof'j]Y'Y'† b[Y'A YbgW'Yb'XUfghY''Yb'z
X]Y'Y]bY'? Uff]YfY'ja 'ÖZYb'h]WYb'8]Ybgh'UbghfYVYb" '9g'V'Y]Vh
UVni k UfhYb'z'k]Y'j]Y'Y'6Yk YfVi b[Yb'ja '5bgW'i gg'Ub'X]Y
J YfUbghU'hi b['Y]b[Y\Yb'k YfXYb'i bX'k]Y'j]Y'Y'† b[Y'A YbgW'Yb
j cb'X]YgYf'7\UbW'; YVfUi W'a UW'Yb'k YfXYb"

6Yfi ZgV]'X'XYg'Dc`nY]VYUa hYb

8 Ug'6Yfi ZgV]'X'XYg'Dc`nY]VYUa hYb '\Uh'g]W']b'XYb''YhnhYb' =\fYb
Yf\YV'W' [Yk UbXY'h" '5i W'k Ybb'XYf'GhfY]ZYbX]Ybgh'bUW'k]Y'j cf
Y]bY'nYbhfU'Y'Fc''Y'Y]bb]a a h'z[Yk]bbYb'gdYn]Y''Y
9]bgUhnVYfY]WY'ni bY'a YbX'Ub'6YXYi hi b["'8Uni 'nA\Yb'i bhYf
UbXYfYa '7mVYfWf]a Y!9fa]hhi b[Yb'z'XYf'[Yk U'hgUa Y
9i hfYa]ga i g'gck]Y'X]Y'6Y_Åa dZ b['j cb'8fc[Yb_f]a]bU'hÅh"
8]YgY'J YfÅbXYfi b[Yb'g]bX'b]W'h'bi f'XUfUi Zni fØW_ni ZØ\Yb'z'XUgg
g]W'X]Y'?f]a]bU'hÅhgUfhYb'X]j Yfg]Zn]Yfh'\UVYb'z'gcbXYfb'Ui W
Ui Z[fi bX'XYf'hYW'bc'c[]gW'Yb': cfhgW'f]hhY'z'X]Y'bYi Y
<YfUi gZcfXYfi b[Yb'ZØf'X]Y'Dc`nY]UfVY]h'a]h'g]W'Vf]b[Yb''

8]Y'Bchk YbX][_Y]h'ZØf'Y]bY'i a ZUggYbXY'5i g!'i bX': cfhV]'Xi b[
k]fX'XUa]h'ja a Yf'cZZYbg]W'h]WYf"'8]Y'Dc`nY]U_UXYa]Y
B]YXYfgUW'gYb'fYU[]Yfh'XUfUi Z']bXYa 'g]Y'XYb'6]'Xi b[gk Y['ZØf
Dc`nY]Ub'k ÅfhYf'UbdUggh'i bX'bYVYb'XYf'_Ugg]gW'Yb'5i gV]'Xi b[
Ui W'gdYn]Y''Y'GW'i 'i b[Yb'ZØf'bYi Y'HYW'bc'c[]Yb'i bX
6UbXYb_f]a]bU'hÅh'UbV]YhYh"'8 Ug'N]Y''gh'Yg'z'X]Y'6YUa hYb'Ui Z'X]Y
fYU'Yb'<YfUi gZcfXYfi b[Yb'j cfni VYfY]hYb'z'a]h'XYbYb'g]Y'ja
6Yfi ZgU'hU['_cbZfcbh]Yfh'k YfXYb"

8]Y'K]W'h][_Y]h'XYf'F Y_fi h]Yfi b[

8]Y'F Y_fi h]Yfi b['bYi Yf'Dc`nY]VYUa hYf']gh'j cb'YbhgW'Y]XYbXYf
6YXYi hi b[ži a 'X]Y'G]W'Yf\Y]h]b'XYf'; YgY''gW'UZh'ni
[Yk Å\Y'Y]ghYb"'8Yf'XYa c[fUZ]gW'Y'K UbXY''i bX'X]Y'ghY][YbXY
5bnU\''Ub'Dc`nY]j U_UbnYb'YfZcfXYfb'Y]b'U_h]j Yg'i bX
n]Y'[Yf]W'hYhYg'F YWfi]h]b["'J YfUbghU'hi b[Yb'k]Y'X]Y' 5VYbX'XYf

6Yk YfVYbXYb `gd]Y`Yb`\\]YfVY]Y]bY`nYbhfU`Y`F c`Y"G]Y`V]YhYb
dchYbn]Y`Yb`6Yk YfVYfb`X]Y`A`Ò[`]W_X]hž`X]fY`_hY`9]bV`]W_Y`]b`XYb
Dc`]nY]U`hU[`ni` `[Yk]bbYb`i`bX`dYfg`Òb`]W_X`?`cbhU`_hY`ni` `_bØdZYb"

BVYVYb`XYf`X]fY`_hYb`5bgdfUW_X`Y`g]bX`Ui`W`C`b`]bY!`?`Ua`dU[`bYb`ni`f
N]Y`[`fi`ddY`bch`k`YbX][`""8]Y`Dc`]nY]`B]YXYfgUW_X`gYb`bi`mh`Gc`W]U`!
A`YX]U!`?`Ub`À`Y`i`bX`D`Uhh`Zc`fa`Yb`k`]Y`H]_Hc`_i`bX`ϕ`ghU[`fUa`ž`i`a
`Øb[`YfY`6Yk`YfVYf`ni` `YffY]W_X`Yb`"9]bY`UhhfU`_hj`Y`Df`Å`gY`b`hU]cb`XYg
6Yfi`ZgV]`XYg`i`bX`XYf`?`Uff]YfYa`Ò[`]W_X]hYb`_Ubb`Yb`hgW_X]Y`XYb`X
gY]bž`i`a`XUg`ϕ`hYfY`ggY`↑`b[`Yf`A`Ybg`W_X`Yb`ni` `k`Y`W`_Yb`"

F`Y`Y`j`Ub`hY`GhU]gh]_Yb`ni`f`Dc`]nY]Ui`gV]`Xi`b`[

@Ui`h`5b[`UVYb`XYg`B]YXYfg`À`W_X]g]W_X`Yb`A`]b]ghYf]i`a`g`ZØf`ϕ`bYfYg
i`bX`Gdc`fh[`]Vh`Y`g`]b`B]YXYfgUW_X`gYb`]a` `ϕ`λ`f`&`\$`&(`Y`hk`U`&")`\$\$
U`_hj`Y`Dc`]nY]VYUa`hY`]b`XYf`5i`gV]`Xi`b[`""8]Y`Ni`Uggi`b[`gei`chY`ZØf
X]Y`Dc`]nY]U`UXYa`]Y`Y[`h`VY]`Y`hk`U`%`\$i`ž`k`Ug`VYXYi`hY`hž`XUgg
b]W_X`h`Y`XYf`6Yk`YfVYf`Y]bY`Ni`gU[`Y`Yf`À`h`"8]Y`gY`NU`λ`Yb
j`YfXYi`h]W_X`Yb`X]Y`k`Y`h`VY`k`YfVg]b`hY`bg]j`Y`B`U`h`i`f`XYg
5i`gk`U`λ`dfcnY`ggY`g`"

8Yg`K`Y]hYfYb`nY][`h`Y]bY`l`a`ZfU[`Y`i`b`hYf`bYi`Yb`Dc`]nY]Ub`k`Å`fhY`fb`ž
XUgg`+`)`i` `XYf`6Y`ZfU[`hYb`Ub[`UVYb`ž`g]W_X`ZØf`X]Y`Dc`]nY]
Yb`hgW_X]Y`XYb`ni` `\\UVYb`ž`i`a`d`c`g]h]j`ni`f`;`Y`gY`g`W_X`U`Z`h`VY]ni`hfU[`Yb`"
8]Y`gY`g`hU]gh]g]W_X`Yb`9f`_Y`b`b`hb]ggY`i`b`hY`f`gh`fY]W_X`Yb`X]Y`6Y`XYi`hi`b[
Y]b`Y`g`d`f`c`Z`Y`gg]cb`Y`Yb`i`b`X`Yb[`U[`]Y`fhYb`Dc`]nY]VYUa`hYb`ž`i`a`XUg
Ø`ZY`bh]W_X`Y`J`Y`fh`f`U`i`Yb`ni` `gh`Å`f`_Yb`i`b`X`Y`ZZY`_hj`Y`A`U`»`b`U`λ`a`Yb`ni`f
?`f]a`]b`U`]h`Å`hg`VY`_`A`a`d`Z`b[`ni` `Yf[`fY]ZYb`"

I`a`X]Y`5`hhfU`_hj`]h`Å`h`XYf`Dc`]nY]_Uff]YfY`k`Y]hYf`ni` `Yf`λ`Ø`λ`Yb`ž`g]b`X
XU`λ`Yf`g`ck`c`λ`Z`c`fh`Ui`ZY`b`XY`ϕ`Z`c`fa`U`h]cb`Yb`Ø`VYf`X]Y
6Yfi`Zga`Ò[`]W_X]hYb`U`g`Ui`W`_]b`X]j`]Xi`Y`Y`DY`fgd`Y`W]j`Y`g`ZØf`↑`b[`Y
6Yk`YfVYf`i`b`Yf`Å`gg`]W_X`"

6Ygi W\Yb`G]Y`i bg`Ui Z.`b!U["XY