

Dc`nY]V]hhYh'i a`<]bk Y]gY'ni`6fAbXYb`]a ? fY]g`J]YfgYb

8]Y`Dc`nY]`]a`? fY]g`J]YfgYb`Yfa`]hhY`h`bUW`Y]bYa
<cW`ghi`\\`i`bX`A`Ø`hcbbYbVfUbX""<]bk Y]gY`g]bX
k]`_ca`a`Yb`

⇒ `? fY]g`J]YfgYb`k`i`fXY`X]Y`Dc`nY]`bUW`Y]bYf`FY]`Y`j`cb`6fAbXYb
U_hj`i`bX`Yfa`]hhY`h`XYfnY]h]b`nk`Y]`J`cfZ`Ä`Ybž`X]Y]b`XYb`Y`hnhYb
HU[Yb`a`Y`f`5i`Za`Yf_gUa`_Y]h`Ui`Z`XYb`Ä`bX`]W`Yb`F`Ui`a`Yb`_`Yb`"
8]Y`9]bg`Ä`hnY`XYf`:`Yi`Yfk`Y`f`c`ZYb`V`UfYb`b]W`h`bi`f`X]Y`a`i`hk`j`][`Y
NYfgh`Ø`fi`b[`ž`gcbXYfb`k`YfZYb`Ui`W`:`fU[Yb`Ø`VYf`X]Y`G]W`Yf`Y]h]b
XYf`FY[]cb`Ui`Z`

5a`:`fY]hU[ž`XYb`&`""5i [i ghž`YbhXYW`hYb`:`Yi`Yfk`Y`f`f`Ä`ZhY`]a
K`U`X[YV]Yh`b`U`Y`XYf`G`hfU`»`Y`Ni`a`C`YVY`Yf`6fi`W`]b`6fØ[[Yb
Y]bYb`Ub[Yn`Ø`bXYhYb`<cW`ghi`\\`i`bVY`_`Ub`bhY`H`Ä`hYf`\\`UhYb`]`b`]b
6fUbX`[YgY`hnhž`k`c`Xi`fW`X`Yf`[YgUa`hY`<cW`ghi`\\`j`c`gh`Ä`bX][
nYfgh`Ø`fh`k`i`fXY`"8`Yf`:`Yi`Yfk`Y`f`Y]bg`Uhn`VY[Ubb`nk`]gW`Yb
8`c`bbYfghU[`%+.`\$`i`f`i`bX`:`fY]hU[`%).`\$`i`f`ž`U`g`X`Ug`:`Yi`Yf
YbhXYW`h`k`i`fXY`"Gc`W`Y`J`Ub`X`U`]ga`i`gU`hY`]a`K`U`X`g]b`X`b]W`h`bi`f
gW`Ä`X`]W`Z`Ø`f`X]Y`B`U`hi`ž`gcbXYfb`Ui`W`Y]b`6Y]gd]Y`Z`Øf
[YgY`gW`U`Zh]W`Y`D`fc`V`Ya`Y`"

K`Y]hYfY`J`cfZ`Ä`Y`Ua`GcbbhU[UVYbX

9]bYb`k`Y]hYfYb`5`Ufa`a`Yf`_`[UV`Yg`Ua`GcbbhU[UVYbX`[Y[Yb`&&
I`f`ž`U`g`Y]bY`A`Ø`hcbbY`Ub`Y]bYf`@U[Yf`U`Y`Ui`Z`XYa`<c`hk`Y[]b
6fUW`h]b`:`Ua`a`Yb`Ui`Z[]b[""9g]gh`U`Ufa`]YfYbX`ni`VYf]W`hYbž
XUgg`Xi`fW`X]YgYb`6fUbX`Ui`W`:`YV`Ä`i`XYgW`Ä`XYb`j`Yfi`fgUW`h
k`i`fXYb`"8]Y`6fUbXi`fgUW`Y]gh`bcW`i`b`_`Ufž`i`bX`X]Y
?f]a`]bU`dc`nY]`\\`Uh`X]Y`9fa`]h`i`b[Yb`]b`X]YgYa`:`U`

Ui Z[Ybca a Yb"5i W\Yf'k]fX'bUW'NYi [Yb'[Ygi W h'X]Y'ni f
5i Z_Àfi b['VY]hfU[Yb'_ÒbbYb"

8]Y'J YfUbhk cfh]WYb'XYf'Dc`nY]gck]Y'X]Y': Yi Yfk Y\ f'VYhcbYb
X]Y'K]W h][_Y]h'XYf'A]h\]'ZY'XYf'6Øf[Yf"Gc`hYb'DYfgcbYb']b'XYf
BÀ\Y'XYf'6fUbXcfhY'j YfXAW h][Y'6YcVUW hi b[Yb'[Ya UW h
\UVYbž'k YfXYb'g]Y'[YVYhYbž'g]W' i bhYf'XYf'HY'Y Zcbbi a a Yf
\$&%'&' ++!\$'ni 'a Y'XYb"' ðgVYgcbXYfY']b'bAW h]WYb'Ghi bXYb']gh
Yg'YbhgWY]XYbXž'Ui Za Yf_gUa 'ni 'gY]b'i bX'i b[Yk Ò\b`]WY
5_h]j]hÀhYb'ni 'a Y'XYbž'i a 'À\b`]WYb'J cfZÀ`Yb
Ybh[Y[Ybni k]f_Yb"

8 Ug'G]WYf\Y]hg[YZØ\`']b'XYf'FY[]cb

8]Y'J cfZÀ`Y'k YfZYb'Y]bYb'GW UhhYb'Ui Z'XUg'G]WYf\Y]hg[YZØ\`'XYf
5bk c\bYf"K]YXYf\c'hY'6fUbXgh]Zhi b[Yb'ghY`Yb'b]W h'bi f'Y]bY
6YXfc\i b['ZØf'X]Y'GUW k YfhY'XUfž'gcbXYfb'Ui W'ZØf'XUg
9a dZ]bXYb'XYf'6Øf[Yf']b']\fYf'Y][YbYb'l a [YVi b["'8Yf'?fY]g
J]YfgYb'a i gg'g]W'a]h'XYf'HUhgUWY'Ui gY]bUbXYfgYhnYbž'XUgg
gc`WY'[Yk U`hÀh][Yb'5i gVfØWY']b'XYf'J Yf[Ub[Yb\Y]h'j]Y`Y]W h
l bfYW h'YbhghUbXYb'g]bXž'YXcW'b]W h'c\bY': c`[Yb'V'Y]VYb
gc`hYb"

8Yf'[YgY`gW UZh]WY'9]bZi gg'j cb'J UbXU']ga i g']gh'k Y]hfY]WYbX
i bX'_Ubb'bUW\U'h][Y'GW ÀXYb'\]bhYf'UggYb"<]bni '_ca a h'XUgg
]a': U`'j cb'6fUbXgh]Zhi b[Yb'Ui W'X]Y'l a k Y'h']b'A]h'Y]XYbgW UZh
[Ync[Yb'k]fX"'8]Y'NYfghØfi b['j cb'K À'XYfbž'Ui W'j]b'_Y]bYa
l a ZUb[ž\Uh`Ub[Zf]gh][Y'5i gk]f_i b[Yb'Ui Z'XUg'^2 _cgmghYa ž'j cb
XYf'NYfghØfi b['j cb'@VYb'gfÀi a Yb'V]g'\]b'ni 'Y]bYf
6Y]bhfAW h][i b['XYf'@ Zhe i U']hÀh"

9g']gh'XU\Yf'i a gc'k]W h][Yfž'XUgg'X]Y'; Ya Y]bgW UZh
ni gUa a YbUfVY]hYh'zi a 'gc`WY'HUhhYb'ni 'j Yf\]bXYfb"'8]Y'Dc`nY]
ghY`h'_Ufž'XUgg'YXYf'<]bk Y]g'ni 'Y]bYf'dchYbn]Y`Yb'5i Z_Àfi b[
XYg'J YfVfYWYbg'VY]hfU[Yb'_Ubb"'>XYf'6Øf[Yf'\Uh'X]Y
A Ò['W _Y]h'z'Ui Z'XUg'; YgWY\Yb']b'gY]bYf'l a [YVi b['ni 'UW hYb
i bX'U_h]j 'ni 'Y]bYf'g]WYfYb'B UW VUfgW UZh'VY]ni hfU[Yb"

5i Zfi Z'ni f'A]h\]`ZY

8]Y'9ffY]WVUf_Y]h'XYf'Dc`nY]'gh'Y]b'YbhgWXY]XYbXYf': U_hcf`]b'XYf
?f]a]bU'dfAj Ybh]cb"6]g'Ub['[]Vh'Yg'_Y]bY'<]bk Y]gY'Ui Z'X]Y
→Ybh]hAh'XYf'HAhYfž'i bX'XUg'A Ub[Y'Ub'→Zcfa Uh]cbYb'_ÖbbhY
a Ö[`]WYfk Y]gY'Ui W'Y]bY'<YfUi gZcfXYfi b[`]b'XYf'5i Z_`Äfi b[
XUfghY`Yb"9g]gh'XU\Yf'Y]b'Xf]b[YbXYf'5ddY`Ub'X]Y
BUWVUfgWUZh'k UWgUa`ni`gY]b'i bX'j YfXAW'h][Y'5_h]j]hAhYb
i a [Y\YbX'ni`a Y'XYb"Bi f'Xi fW'XUg'Ni gUa`a Ybk]f_Yb'j cb
Dc`nY]'i bX'6Øf[Yfb'_Ubb'XUg'G]WYf\Y]hg[YZØ\`]b'XYf'FY[]cb
[YghÄf_h'k YfXYb"

9]bV`]W_Y`]b'X]Y'<Äi Z][_Y]h'j cb

6fUbXgh]Zhi b[Yb

6fUbXgh]Zhi b[Yb'k]Y'X]Y'ja`?fY]g'J]YfgYb'g]bX'_Y]bž']gc`]YfhYg
D\Äbca Yb"8]Y'Dc`nY]'b'8Yi hgW'UbX'j YfnY]WbYhY`]b'XYb
'YmhYb'→\fYb'Y]bYb'5bgh]Y[]cb'GUWVYgW'ÄX][i b[Ybž
Y]bgW'Y]Y»`W'6fUbXgh]Zhi b[Yb"@Ui h'Y]bYf'GhUh]gh]_XYg
6i bXYg_f]a]bU'Ua hg'f6?5L'[UV'Yg]a`→\f'&\$&%ØVYf'%"\$\$\$\$
fY[]ghf]YfhY'6fUbXgh]Zhi b[Yb'j]b'8Yi hgW'UbX"8]YgY'NU\`U]b
XYb'YmhYb'→\fYb'Y]W'hY'GW'k Ub_i b[Yb'YfZU\Ybž']gh'UVYf
]bg[YgUa h'fY'Uh]j]_cbghUbh[YV`]YVYb"

8]Y'; fØbXY'ZØf'6fUbXgh]Zhi b[Yb'g]bX'j]Y'ZÄ'h]["C Zha U'g'gd]Y'Yb
gcn]U'Y'DfcV'Ya Yžk]Y'→ [YbX_f]a]bU']hAh'cXYf'J UbXU`]ga i gž'Y]bY
Fc`Y"→a UbWYb': Ä`Yb'g]bX'Yg'Ui W'dgmW'c`c[]gWY': U_hcfYbž
X]Y'HAhYf'XUni`VYk Y[Ybž': Yi Yf'ni`Y[Yb"8Ug'9b[U[Ya Ybh'XYf
Dc`nY]'i bX'XYf': Yi Yfk Y\f'ni f'DfAj Ybh]cb'i bX'5i Z_`Äfi b[`]gh
XU\Yf'j cb`nYbhfU'Yf'6YXYi hi b["

8Yf'9]bZ'i gg'Ui Z'X]Y'; Ya Y]bgWUZh

6fÄbXY'b]W'h'bi f'a UhYf]Y`Y'GW'ÄXYbž'gcbXYfb'_ÖbbYb'Ui W
5i gk]f_i b[Yb'Ui Z'XUg'G]WYf\Y]hg[YZØ\`XYf'5bk c\Yf'\UVYb"
→gVYgcbXYfY'j]b'ÄbX`]WYb'; YV]YhYbž'k c'; Ya Y]bgWUZhg[YZØ\
i bX'BUWVUfgWUZh'cZiYb[]j YfVi bXYb'g]bXž'_ÖbbYb'gc`WY

J cfZÀ`Y`GWfYW_Yb`i bX`l bgjWXYf\Y]h`YfnYi [Yb`"9]bk c\`bYf
_ÒbbYb`]b`]\fYa`5`hU[`j Yfi bgjWXYfh`k YfXYbž`k Ug`XUg
Ni gUa`a Yb`YVYb`i bX`X]Y`gcN]U`Yb``hYfU_h]cbYb`VY`UghYb`_Ubb"

Ni gÀhn`]W`a ØggYb`X]Y` ; Ya`Y]bXYb`Ui W`Z]bUbn]Y`Y`A`]hY`ZØf`X]Y
`hghUbXgYhni b[`j cb`VYgW`ÀX][hYb` ; YV`Ài XYb`i bX`X]Y
l bhYfghØhni b[`j cb`C`dZYfb`VYfY]hghY`Yb`"8]YgY`6Y`Ughi b[Yb
_ÒbbYb`[YfUXY`]b`_Y]bYfYb` ; Ya`Y]bXYb`Yf\YV`]W`Y
5i gk]f`_i b[Yb`Ui Z`XYb`<Ui g`U`h`\UVYb`i bX`X]Y`F`Yggci fW`b`j cb
`c`_U`Ya`9]bgUhdYfgcbU`i bX`gcN]U`Yb`8]YbghYb`ghfUdUn]YfYb"

DfÀj Ybh]cbga U» bU\`a Yb`i bX`5i Z`_`Àfi b[

`j]Y`Yb`Gh`XhYb`i bX` ; Ya`Y]bXYb`k YfXYb`a`]h`Yfk Y]`Y`gdYn]Y`Y`Y
DfÀj Ybh]cbgdfc[fUa`a Y`Yb`hk]W`Y`hž`i a`6fUbXgh]Zhi b[Yb`i bX
UbXYfY` : cfa Yb`j cb`J`UbXU`]ga`i g`ni`VY`_`Àa`dZYb`"8Uni`[Y\`ØfYb
5i Z`_`Àfi b[ga`U» bU\`a Yb`ZØf`š [Yb`X`]W`Yž`i a`XUg`6Yk`i gghgY]b
ZØf`X]Y` ; YZU`fYb`i bX`fYW`h`]W`Yb`?cbgYe`i YbnYb`j cb
6fUbXgh]Zhi b[`ni`gW`ÀfZYb`"hZcfa`Uh]cbgj YfUbghU`hi b[Yb`gck`]Y
K`cf`g`cdg`]b`GW`i`Yb`i bX`š [Yb`XnYb`hfYb`\UVYb`g]W`U`g`YZZ`_h]j
Yfk`]YgYb"

9]b`ni gÀhn`]W`Yg`5i [Yba`Yf`_`]Y[h`Ui Z`XYf`Ni gUa`a Yb`UfVY]h
nk`]gW`Yb`Dc`]nY`]i bX`XYf`6Yj`Ò`_Yfi b["B`UW`VUfgW`UZhgk`UW`Yb
i bX`6Øf[Yf]b]h]Uh]j Yb`gd]Y`Yb`Y]bY`Yb`hgW`Y]XYbXY`F`c`Y`VY`]XYf
K`U`fbY`a`i b[`i bX`A`Y`Xi b[`j cb`j YfX`ÀW`h][Yb`5_h]j]h`hYbž`k Ug
ni f`5i Z`_`Àfi b[`j cb`J`cfZÀ`Yb`VY]hfU[Yb`_Ubb"**6? 5**

8YhU]`g

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