

6`i h][Y`5i gY]b UbXYfgYhni b [Yb`]b
8 gWXYb]b. `Nk Y]`Hc hY`VY]`A]`]hÅfY]b gUhn

Nk Y]`DU`Àgh]bYbgYf`ghUfVYb`]b`8 gWXYb]b`VY]`]gfUY`]gWXYb
A]`]hÅfY]bgÅhnYb/nU`fY]WXY`J Yf`YhnhY`i bX`Ub`U`hYbXY
; Yk U`h`a`K Ygh`c`fXUb`UbX"

⊕`XYf`B UWX`h`_Ua`Yg`]b`XYf`GhUX`h`8 gWXYb]b`]a`K Ygh`c`fXUb`UbX`ni
`Y`Zh][Yb`?`cb`Zfcb`hUh]cbYb`k`Å`fYbX`Y]bYg`]gfUY`]gWXYb
A]`]hÅfY]bgUhnYg"@Ui`h`5b[UVYb`XYg; Ygi`bX`Y]hga`]b]ghYf]i`a`g`]b
F`Ua`U`U`g]bX`XUVY]`nk Y]`A`YbgWXYb`[Yh`ØhY`h`k`c`fXYb`"8]Y
⇒Yb]h]hÅ`h`XYf`C`d`ZYf`]gh`bc`W`i`b`_`Uf`ž`i`bX`c`V`g]Y`a`]`]hUb`hY
DU`Àgh]bYbgYf`k`UfYb`ž`ghY`h`V]g`Ub[`b]W`h`ZY`gh`"8`Uf`Ø`VYf`>`]b`Ui`g
[UV`Yg`a`Y`fYfY`J`Yf`YhnhY`ž`k`Ug`X]Y`c`b`Y`]b`Ub[Ygd`Ubb`hY
G]hi`Uh]cb`k`Y]hYf`Yg`_U`]YfYb`"Åggh"

8]Y`]gfUY`]gWXY`5fa`YY`U`h`Ø`VYf`X]Y`D`U`h`Zc`fa`L`VY`_`Ubb`h
[Y[YVYb`ž`X`Ugg`g]Y`5b]h!`HY`ffc`f!`9]bgÅ`hnY`]b`8 gWXYb]b`i`b`X
Hi`_`UfY`a`ž`nk`Y]`U`g`<`c`W`Vi`f[Yb`a`]`]hÅfYf`5`_h]j`]hÅ`hYb`[Y`hYb`XYb
Gh`Å`X`hYb`ž`[YghUf`hY`h`U`h`"9g`k`]fX`[Ya`Y`XY`h`ž`X`Ugg`X]YgY`9]bgÅ`hnY`]b
VY]XY`Gh`Å`X`hY`i`a`Z`Ub[fY]W`Y`C`d`Yf`Uh]cbYb`i`a`Z`UggYb`ž`X]Y
a`Ö[`]W`Y`fk`Y]gY`ni`k`Y]hYfYb`VYk`UZZ`b`Y`hYb`5i`gY]bUbXYfgYhni`b[Yb
Z`Ø`fYb`_`Ø`bb`hYb`"9]b`]b`hYbg]j`Yg`G]W`Y`f`Y]hgUi`Z[YV`ch`i`b`X
j`c`f[Yb`ca`a`YbYb`F`U`nn]Yb`gWXY]bYb`Y]b`NY]W`Yb`Z`Ø`f`X]Y
k`U`W`gYb`XY`6`Y`gc`f[b]g`Ø`VYf`X]Y`a`]`]hÅf]gWXY`Df`Å`gYb`ni`b`X`X]Y
5`_h]j`]hÅ`hYb`XYf`DU`Àgh]bYbgYf`]b`X]YgYb; YV]YhYb`ni`gY]b"

A]`]hÅfY]b gUhn`i`b`X`F`Y`U`_`h]c`b`Y`b`X`Y`f
G]W`Y`f`Y]hg`_`f`Å`ZhY

6Yf]W`hYb`XYf`d`U`Àgh]bYbg]gWXYb`B`U`W`f]W`hYb`U[Yb`hi`f`K`U`Z`U
ni`Zc`[Y`]gh`Y]bY`Yf`YV`]W`Y`5`bn`U`U`b`A`]`]hÅfZU`f`nYi`[Yb`]b

8gWXYb]b`Y]b[YhfcZZYb"8]YgY`a]]hÅf]gWXYb`6Yk Y[i b[Yb`UVYb
Ui W`ni f`l a ghY`i b[`j cb`?fUb_Yb`Ài gYfb`]b`VY]XYb`GhÅXhYb
[YZ0\fh"8]Y`]gfUY`]gWXYb`G]WXYf\Y]hg_fÅZhY`_cbhfc`]]YfYb`XYb
Ni [Ub[`ni`XYb`?`]b_]Ybž`i a `ni `j Yf\]bXYfbž`XUgg`g]W
a i ha U»`]WXY`A]]hUbhY`Xcfhj YfghYW_Yb`_ÖbbYb"8]Yg`UhiXUni
[YZ0\fhž`XUgg`FYhhi b[gZU`fnYi [Y`]b`Hi`_UfYa`V`cW_]Yfh`k i fXYbž
k Ug`X]Y`G]hi Uh]cb`Z0f`J Yfk i bXYhY`Yf\YV`]W`j YfgW`ÅfZh"

8]Y`Ub[YgdUbbhY`@U[Y`]a`K Ygh`cfXUb`UbX`\Uh`g]W`bUW`XYa
j Yf\YYfYbXYb`<Ua Ug!A UggU_Yf`Ua`+`"C`_hcVYf`&\$&`žVY`]XYa
ØVYf`%"&\$`\$`A YbgWXYb`ghUfVYbž`k Y]hYf`j YfgW`ÅfZh`GY]hXYa`g]bX
bUW`i bVYgh`h]hYb`6Yf]W`hYb`XYg`; Ygi bX`Y]hga`]b]ghYf]i a`g]b
FUa U`U`a`Y`f`U`g`*`&\$`DU`Ågh]bYbgYf`VY]`a`]]hÅf]gWXYb
9]bg`hYbž`VYk UZbYhYb`?cbZfcbhUh]cbYb`i bX`_ VYf[f]ZZYb`j cb
9l hfYa`]ghYb`i a`g`@VYb`[Y`_ca`a`Yb`"5i W`X]Y`; Yk U`hž`X]Y`j cb
]gfUY`]gWXYb`G]YX`Yfb`[Y[Yb`DU`Ågh]bYbgYf`Ui`g[YØVh`k`]fXž`\Uh
ni [Ybca`a`Yb`i bX`gcf[h`Z0f`k`Y]hYfY`GdUbbi`b[Yb`"

9g`]gh`b]W`h`XUg`YfghY`A U`ž`XUgg`X]Y`]gfUY`]gWXY`5fa`YY`]b`8gWXYb]b
i bX`Hi`_UfYa`cdYf]Yfh`"a`a`Yf`k`]YXYf`[]Vh`Yg`F`Unn]Ybž`X]Y
k U`fgWXY]b`]W`Ui`Z`X]Y`J`Yf\U`Zi`b[`j cb`[Ygi`W`hYb`A`]]hUbhYb
UVn]Y`Yb`"9]b`6Y]gd]Y`]gh`XYf`YhnhY`@`ZhUb[f]ZZ`XYf`Ua`A`cbhU[
ghUhhZubX`"<]YfVY]`k i fXYb`Z0b`ZA`YbgWXYb`]a`i`:`ØW`h]b[gj`]YfhY`
Bi`f`GW`Ua`g]b`Hi`_UfYa`[Yh`ØhYhž`k`cVY]`X]Y`]gfUY`]gWXY`5fa`YY
Ub[]Vhž`a`]]hUbhY`DU`Ågh]bYbgYf`]a`J]g]Yf`[Y`UVh`ni`UVYb`"

8]Y`i`c`[Yb`XYf`; Yk U`h`i`bX`X]Y`U`_hi`Y`Y`
@U[Y`

8]Y`k`]YXYf`c`hYb`a`]]hÅf]gWXYb`C`dYfUh]cbYb`]a`K`Ygh`cfXUb`UbX
k YfZYb`i`fU[Yb`ØVYf`X]Y`[YgUa`hY`G]WXYf\Y]hg`U[Y`]b`XYf`FY`[]cb
Ui`Z`8]Y`a`]]hÅf]gWXYb`5`_h]cbYb`XYg`]gfUY`]gWXYb`GhUUhYg
VYXYi`hYb`b]W`h`bi`f`Y]bY`i`ba`]hY`VUfY`?`cbZfcbhUh]cb`a`]h`XYb
DU`Ågh]bYbgYfbž`gcbXYfb`Z0`fYb`Ui`W`ni`Y]bYa`HYi`ZY`g`_fY]g]j`cb
; Yk U`h`i`bX`F`UW`Y`"A`]h`YXYa`[Yk U`hgUa`Yb`J`cfZU`k`]fX`X]Y
A`Ö[`]W`_Y]hY]bYg`_ØbZh][Yb`i`f]YXYbg`k`Y]hYf`]b`i`fU[Y`[YghY`h`"

8]Y`GW`k`YfY`XYf`G]hi`Uh]cb`k`]fX`Ui`W`Xi`fW`X]Y`]b`hYfbUh]cb`U`Y`

5i Za Yf_gUa _Y]hi bX'6Yf]W hYfghUhi b['j YfghÅf_hž'X]Y'X]YgY
J cfZÀ''Y'VY['Y]hYb''8]Y'K Y'higWXY]bh[YVUbbh'Ui Z'X]Y
9bhk]W_ì b[Yb'ja 'K Ygh'c fXUb`UbX'ì bX'; UnU'ni 'gWXYi Yb'ì bX
ZfU[h'ig]W ž'k]Y'Yg'a]h'XYa 'c\ bY\]b'ZfU[]'Yb': f]YXYbgdfcnYgg
k Y]hYf[Y\Yb'_Ubb''8]Y'k]YXYf_Y\ fYbXYb'a]'hÅf]gWXYb'9]bgÅhnY
i bX'X]Y'ghY][YbXYb'J Yf'ì ghnU\ Yb'ghY''Yb'b]W h'bi f'Y]bY
< YfUi gZc fXYfi b['ZØf'X]Y'VYhfc ZYbYb'A YbgWXYb'XUfž'gcbXYfb
Ui W'ZØf'X]Y'bhYfbUh]cbU'Yb'6Ya Ø\i b[Yb'ì a 'GhUV]'hÅh]b'XYf
F Y[]cb"

8]Y'A]'hUf]g]Yfi b['X]YgYf'F Y[]cb'ì bX'X]Y'< Åi Z[_Y]h'j cb
VYk UZbYhYb'5i gY]bUbXYfgYhni b[Yb'j YfXYi h]WXYb'Y]bY
VYgcf[b]gYffY[YbXY'HYbXYbn''b'Y]bYa '?`ja Už'XUg'j cb'5b[ghž
l bg]WXYf\Y]hi bX'HfUi Yf'[YdfÅ[h]ghž'V'Y]Vh'X]Y': fU[Y'c ZYbž'k]Y
k Y]hYf'j YfZU\ fYb'k YfXYb'_Ubbž'ì a 'Y]bY'8YYg_U'Uh]cb'ni
YffY]WXYb'ì bX'XUg'@YVYb'XYf'N]j]'VYj Ò'_Yfi b['ni 'gWXYØhnYb"

8]Y'G]hi Uh]cb'ja 'K Ygh'c fXUb`UbX'fYZY_h]Yfh'X]Y'Ub\ U'hYbXYb
GdUbbi b[Yb'nk]gWXYb'g'fUY`]g'ì bX'DU'Àgh]bYbgYfbž'X]Y'g]WXY'Ui g
X\fnY\ bhYb'XYg'?cbZ]_hg'Yf[YVYb'\ UVYb''8Yf']g'fUY`]gWXY
A]'hÅfYb[dUgg]b'GhÅXhY'k]Y'8gWXYb]b'ì bX'Hi '_UfYa ']gh'b]WXYh
bYi ž'gd]Y[Y'h'YXcW'Y]bY'j bhYbg]j YfY'D\ UgY'XYg'?cbZ]_hg'k]XYfž
X]Y'Xi fW'dc`h]gWXYž'k]fhgWXYUZh]WXY'ì bX'gcn]U'Y': U_hc fYb
j YfghÅf_h'k]fX''8 Ug': Y\Yb'Y]bYg'ghUV]Yb'dc`h]gWXYb'Df'cnYggYg
\Uh'X]Y'6Yn]Y\i b[Yb'nk]gWXYb'XYb'; Ya Y]bgWXYUZhYb'k Y]hYf
VY'UghYh''J]Y'Y'DU'Àgh]bYbgYf'ZØ\ hYb'g]WXY'j b']\ fYf'5i hcbca]Y
Y]b[YgWXYÅb_hž'k Å\ fYbX'g'fUY`]g'g]WXY'ni bY\ a YbX'Xi fW'a]'hUbhY
5_h]j]hÅhYb'VYXfc'h'igY\Yb"

8]Y'U_hi Y''Y'9g_U'Uh]cb'Zc'[h'XYb'9bhk]W_ì b[Ybž'X]Y'ni f
[Yk U'hgUa Yb'5i gY]bUbXYfgYhni b['nk]gWXYb'g'fUY`'ì bX'< Ua Ug
]a 'ì; UnUghfY]ZYb'[YZØ\ fh'\ UVYb''8]YgY'5i gY]bUbXYfgYhni b[ž'X]Y
Ua ' +'C_hcVYf'&\$&' VY[Ubbž'\ Uh'Ui W'ja 'K Ygh'c fXUb`UbX'Y]bY
K Y''Y'j cb'; Yk U'h'Ui g[Y'Ògh''5i g'ÒgYf'XYg'?cbZ]_hg'k Uf'XUg
a UggYb\UZhY'ì bX'Vfi hU'Y'J cf[Y\Yb'j cb'< Ua Ugž'XUg'Y]bY
ØVYfk Å'h][YbXY'5bnU\`j cb'CdZYfb'Zc fXYfhY'ì bX'Y]bYb'k Y]hYfYb
'fY]g'Ui ZXYg'< UggYg'ì bX'XYf'F UWXY'j b'; Ub['gYhnhY"

8]Y`bUWZc`[YbXYb`9fY][b]ggY`UVYb`b]W`h`bi`f`XUg`@VYb`j`jY`Yf
DU`Àgh]bYbgYf`VYXfc`hž`gcbXYfb`Ui`W`nU`fY]W`Y
A`YbgW`Yb`fY`W`hgZfU[Yb`Ui`Z[Yk`cfZYb`"8]Y`6Yf]W`hY`ØVYf`X]Y
I`a`ghY`i`b[`j`cb`?`fUb`_Yb`Ài`gYfb`i`bX`6`cW`UXYb`j`cb
F`Y`hi`b[`gX]YbghYb`nY][Yb`X]Y`i`a`Ub]h`ÀfYb`<`YfUi`gZc`fXYfi`b[Ybž
a`]h`XYbYb`X]Y`N]j`j`VYj`Ò`_Yfi`b[`_cbZfcbh]Yfh]gh"

8]Y`6`cW`UXY`i`bX`X]Y`ni`bY`a`YbXY`a`j`]h`Àf]gW`Y`Df`ÀgYbn`ja
K`Ygh`c`fXUb`UbX`UVYb`VYfY]hg`ni`j`cf`ni`GdUbbi`b[Yb`[YZØ`fhž`X]Y
g]W`X`i`fW`a`j`]h`Àf]gW`Y`F`Unn]Yb`i`bX`[Yk`U`hgUa`Y
Ni`gUa`a`Ybgh`Ø»`Y`j`YfgW`ÀfZhYb`"8]Y`dU`Àgh]bYbg]gW`Y
N]j`j`VYj`Ò`_Yfi`b[`]gh]b`X]YgYf`hi`fVi`Yb`hYb`NY]h`ghUf`_`VYhf`cZYb`ž`XU
j`jY`Y`;`Ya`Y]bXYb`i`bhYf`XYb`5i`gk`]f`_i`b[Yb`XYf`Ub`U`hYbXYb
;`Yk`U`h`Y]XYb`"⊕`XYb`:`ØW`h]b[`g`U[Yfbž`X]Y`cZ`h`a`]h`c`Yf`8]W`hY
i`bX`5fa`i`h`_cbZfcbh]Yfh]g]bXž`]gh`X]Y`j`Yfnk`Y]Zi`b[`]fc»"

8]Y`gcn]U`Yb`i`bX`k`]fhgW`UZh]W`Yb`6YX]b[`i`b[Yb`]b`XYb
dU`Àgh]bYbg]gW`Yb`i`YV]YhYb`g]bX`YVYbZU`g`VYXfØW`YbX`" <`c`Y
5fVY]hg`cg][`_Y]hi`bX`Y]b`_bUddYg`Ni`[Ub[`ni`F`Yggci`fW`b
j`Yfgh`Àf`_Yb`X]Y`i`bfi`Yb`i`bX`X]Y`i`bni`Zf]YXYb`Y]h]b`XYf
6Yj`Ò`_Yfi`b["8]Y`⊕`hYfbU`g]Yfi`b[`XYg`?`cbZ`_hg`]bbYf`U`V`XYf
j`YfgW`Y]XYbYb`dU`Àgh]bYbg]gW`Yb`i`fU`_h]cbYb`ZØ`fh`ni`XYa`ni
dc`]h]gW`Yb`GdUbbi`b[Ybž`X]Y`Yg`gW`k`jYf][`a`UW`Ybž`Y]bY
Y]b`Y]h]W`Y`5b`hk`cfh`Ui`Z`X]Y`<`YfUi`gZc`fXYfi`b[`XYf`i`Yk`U`h`ni
Z]bXYb"

8]Y`@U[Y`V`Y]Vh`Ub[YgdUbbhž`i`bX`X]Y`<]bk`YbXi`b[`ni`f`Gh]a`a`Y
XYf`N]j`j`[YgY`gW`UZh]gh]j`cb`Yb`hgW`Y]XYbXYf`6YXYi`hi`b["
:`f]YXYbg]b]h]Uh]j`Ybž`X]Y`gck`c`j`cb`]bhYfbUh]cbU`Yb`U`g`Ui`W`j`cb
`c`_U`Yb`5`_hYi`fYb`Ui`g[Y`Ybž`_ØbbhYb`Ub[Zf]gh][`ni`f`9bhgW`ÀfZi`b[
XYf`G]hi`Uh]cb`VY]hfU[Yb`"⊕]h]Uh]j`Yb`ni`f`i`ØfXYfi`b[`XYg`8]U`c[`g
i`bX`XYf`Ni`gUa`a`YbUfVY]h`g]bX`i`bYf`Àgg`]W`ž`i`a`X]Y
@VYb`gVYX]b[`i`b[Yb`j`cf`C`fh`ni`j`YfVYggYfb`i`bX`Y]bY`D`UhhZcfa
ZØf`bUW`U`h][Yb`i`f]YXYb`ni`gW`UZYb"

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