

HGJ ; fYhhghUXh'\_Ugg]Yfh'\ YfVY  
\$.) !B ]YXYf`U[ Y '[ Y[ Yb`8 ]hhY`Vfi bb

8Yf`HGJ ; fYhhghUXh`Yf`Y]XYh`Y]bY`\$.) !B ]YXYf`U[ Y '[ Y[ Yb  
8 ]hhY`Vfi bb`i bX`j YfdUggh`XYb`Gdfi b[ `Ub`X]Y`HUVY`Ybgd]hY  
]b`XYf`? fY]g`][ U"

9]b`i bYfk UfhYhYf`GW`U[ `Z0f`XYb`HGJ ; fYhhghUXh`B UWX`Y]bYf  
VYY]bXfi W\_YbXYb`GYf]Y`j cb`Z0bZ`G]Y[ Yb`ni`6Y[ ]bb`XYf`GU]gcb`]b  
XYf`i » VU`!`? fY]g`][ U`GW`k Y]bZ` fh`%ž`Yf`YVhYb`X]Y` ; Ugh[ YVYf`Ua  
8]YbghU[ UVYbX`Y]bY`\YfVY`B]YXYf`U[ Y"; Y[ Yb`X]Y`G; `8]hhY`Vfi bb  
a i gghYb`g]Y`g]W`a` ]h`Y]bYa`XYi h]W`Yb`\$.) `[ YgW`U[ Yb`[ YVYb`"  
8]Yg`k Uf`b]W`h`bi f`XYf`YfghY`Di b\_hj Yf`i gh`]b`X]YgYf`GU]gcbž  
gcbXYfb`[ `Y]W`nY]h][ `Ui W`X]Y`YfghY`B]YXYf`U[ Yž`X]Y`g]Y`Ui Z  
\Y]a` ]gW`Ya` `6cXYb`\]bbY`a` Yb`a i gghYb`"

CVk c`\`X]Y`Gd]Y`Yf`XYg`HGJ ; fYhhghUXh`]b`XYf`YfghYb`< U`VnY]h  
Xi fW`Ui g`VYa` 0`h`k UfYbž`i a`XYb`8 fi W`\_ [ Y[ Yb`8 ]hhY`Vfi bb`ni  
Yf\ 0`Ybž`g]Y`h`X]Y`F`YU`]h`h`UbXYfg`Ui`g`"HYW`b]gW`Y`A`Àb[ Y`i`bX  
A ]ggj Yfgh`ÀbXb]ggY`df`À[ hYb`XUg`Gd]Y`XYf` ; fYhhgh`X`hYf`"8]Y  
j Yf`Yh`h`i`a i gghYb`i bX`XYb`i f`Ui VYbXYb`Gd]Y`YfhfU]bYf` : `cf]Ub  
< YhY`j`Yfa` ]gghYb` ; Ugh[ YVYf`\_cbbhYb`b]W`h`Ub`X]Y`ghUf`\_Y` : cfa  
XYf`j`cfUb[ Y[ Ub[ YbYb`Gd]Y`Y`Ub\_b0dZYb`i bX`\UhYb`DfcV`Ya` Yž  
[ YZ`\f`]W`Y`7`UbW`b`ni`\_fY]YfYb`"

9]b`Gd]Y`j`c`Yf`7`UbW`b`Z0f`X]Y  
8]hhY`Vfi bbYf

8]Y`G; `8]hhY`Vfi bb`\]b[ Y[ Yb`nY][ hY`Y]b`[ Ub`n`UbXYfYg; Yg]W`h  
A]h`XYa`YfghYb`Hc`fgW`i`gg`hfUZ`A`Ufj`b`6Ufh`\`ni`f` : 0`fi`b[ `i`bX  
? Ud]h`Àb` : UV]Ub`? 0[ Y`Yf\ 0`hY`\_i`fn`XUfUi`ZdYf`9`Za`YhYf`"J`cb`XYb  
YfghYb`A`]bi`hYb`Ub`k`Uf`\_`Ufž`XUgg`8]hhY`Vfi bb`Ub`X]YgYa`5VYbX

YbhgW`cggYb`i bX`a ]h`Y]bYa `D`Ub`Ui Z`XYb`D`Uhn`\_Ua Yb`"BUW`XYf  
DUi g`Y`V`]YVYb`X]Y` ; fYhgh`A`XhYf`i b`\_cbnYbhf]Yfh`i bX`8]hhY`Vfi bb  
bi hnhY`X]Y`g]W`V]YhYbXYb`7\UbWb`Y]g`\_U`h`Ui g`"8Yf`Gd]Y`Yf  
: UV]Ub`GhYbn]b[ Yf`gYhnhY`XYa` ; Ubnyb`X]Y`?fcbY`Ui Z`j]bXYa`Yf  
a ]h`Y]bYa `VYY]bXfi W`\_YbXYb` : fY]ghc`»`Ui g`ØVYf` ( \$`A`YhYfb`XUg` ) . \$  
Yfn]Y`hY`"

8]Y`Ni gW`Ui Yf`ž`fi bX`%\$`\$`Ub`XYf`NU\`ž`gU`Yb`Y]bYb` [ i h  
cf[ Ub]g]YfhYb` ; Y[ bYf`ž`XYf`a ]h` ; YgW`cggYb`Y]h`i bX`@Y]XYbgW`UZh  
j YfhY]X][ hY`" ; Y[ Yb`XYb`HUVY`YbZØ`fYf`a i gg`a Ub`XUg`Yfgh  
Y]ba U`gc`gd]Y`Yb ž`gU[ hY`GhYbn]b[ Yf`bUW`XYa`Gd]Y`"9f`gW`A`hnhY  
X]Y`@Y]ghi b[ `gY]bYg`HYUa g`ž`k c`hY`UVYf`XYbbcW`X]Y`9i d`cf]Y  
VfYa gYb`" K ]f`k ]ggYb`ž`k c`k ]f`\]b[ Y`ØfYb ž`ZØ[ hY`Yf`\]bni`i bX  
VYhcbhY`XUa ]h`XUgg`XUg`HYUa`hfchn`XYg`G]Y[ Yg`k Y]hYf`\]b  
XYa Øh][ `V`Y]VYb`gc`hY`"

5i Z`XYf`UbXYfYb`GY]hY`XYg`Gd]Y`ZY`Xg`k Uf`X]Y`9bhh`A`i gW`i b[ `ZØf  
X]Y` ; fYhgh`A`XhYf`ØVYfXYi h`]W`" Æ fY`? Ud]h`A`b`ž`ž` `]Ub`² ghfY]W`Yfž  
UbU`mg]YfhY`X]Y`GnYbY`\_`Uf`i bX`XYi h`]W`" K ]f`k UfYb`Yi hY`b]W`h  
Ui Z`XYa`D`Uhn`i bX`\UVYb`i bg`ni`j ]Y`Y` : Y`Yf`[ Y`Y]ghYh`K ]f`k UfYb  
b]W`h`gc`[ ]Yf][ `i bX`[ U`][ `k ]Y`XYf` ; Y[ bYf`ž`gc`gY]bY`\_f]h]gW`Yb  
K cfhY`"9f`V`]W`\_h`c`dh]a ]gh]gW`Ui Z`X]Y`b`A`W`ghY`<YfUi g`Zc`fXYfi b[ ž  
\c`Z`h`Y`X`c`W`Ui Z`Y]bY`gW`bY`gha`Ø[ `]W`Y`5bU`mgY`XYg`Gd]Y`g`ž`i a  
Ui g`X]YgYb` : Y`Yf`b`ni`Yf`bYb`"

## Gd]Y`j Yf`Ui Z`i bX`GhUh]gh]\_Yb

8]Y`HcFY`Z]Y`Yb`k ]Y`Zc`[ h`6Ufh`Yf`ØZbYhY`]b`XYf`" \$`"A ]bi hY`XUg  
Gw`fYž`[ YZc`[ hij cb`?Ø[ Y`]b`XYf` ( &`"A ]bi hY`ž`XYf`Y]bYb  
: ci`Y`Za`YhYf`j Yfk UbXY`hY`" Æ`XYf`nk Y]hYb`<U`VnY]h`]Y» Yb`X]Y  
8]hhY`Vfi bbYf`\_Y]bY`Nk Y]ZY`Ui Z`\_ca`a Yb`i bX`Yf`\Ø`hYb`Xi fW`  
K i bXYf`f( , "Ł`ž`6Ufh`f`+\$`Ł`i bX`gW`Y]Y» ]W`GhYbn]b[ Yf`f`+ , "Ł`Ui Z  
) . \$"

8]Y`YfghYb`ZØbZ`Gd]Y`Y`XYf`GU]gcb`\UhYb`XYa`HGJ` ; fYhghUXh  
C dh]a ]ga i g`[ Y[ YVYb`/bi b`a ØggYb`g]Y`g]W`bYi`Ui ZghY`Yb`i bX  
a`Ø[ `]W`Yfk Y]gY`]Yf`GhfUhY[ ]Y`ØVYfXYb`\_Yb`"8 Ug`Y`hnhY`Gd]Y`  
[ Y[ Yb`8]hhY`Vfi bb`k Uf`XYf`H]YZdi b`\_h`XYg`V]g`Yf][ Yb`@Ui ZYg`ž`i bX

X]Y': c`[ Y`k ]fX`gY]bž`XUgg`X]Y`A UbbgW`UZh`i bhYf`8 fi W`\_ghY`hž`g]W`  
ni`VYk Y]gYb`i bX`gc`gW`bY`k ]Y`a` Õ[ `]W`k ]YXYf`Ui Z`X]Y`  
G]Y[ YfghfU`Y`ni fØW`ni`\_Y`fYb`"

≠`XYf`?fY]g`][ U`GW`k Y]bZ` fh%`\_ÖbbhY`X]YgYf`Gd]Y`hU[ `U`g`  
K YbXYdi b`\_h`VYhfUW`hYh`k YfXYbž`i bX`b]W`h`bi f`ZØf`; fYhghUXh`  
A UbbgW`UZhYb`k ]Y`8]hY`Vfi bb`\_UVYb`[ YnY][ hž`XUgg`Ui W`  
5i ZghY][ Yf`b`XYf`@U[ Y`g]bXž`g]W`[ Y[ Yb`j Yfa Y]bh]W`ØVYf`Y[ YbY`  
; Y[ bYf`ni f`K Y`f`ni`gYhYb`i bX`ni`hf]i a`d`YfYb`"

8]Y`6YXYi hi b[ `XYg`Gd]Y`g`]a` `?cbhYI h`XYf`  
GU]gcb`

8]Y`DUfh]Y`nk ]gW`Yb`XYa`HGJ`; fYhghUXhi bX`XYf`G; `8]hY`Vfi bb`  
\_UhhY`b]W`h`bi f`5i gk ]f`\_i b[ Yb`Ui Z`X]Y`HUVY`Yž`gcbXYfb`Ui W`Ui Z`  
X]Y`A cfU`XYf`A UbbgW`UZhYb`": Øf`; fYhghUXh`k Uf`X]Y`B]YXYf`U[ Y`  
Y]b`\_YfVYf`F ØW`gW`U[ ž`bUW`XYa`g]Y`]b`XYb`YfghYb`ZØbZ`Gd]Y`Yb`  
Y]bY`VYY]bXfi W`YbXY`@Y]ghi b[ `[ YnY][ h`\_UhhYb`"Gc`W`Y`  
i bYfk UfhYhYb`B]YXYf`U[ Yb`\_ÖbbYb`YXcW`\_Y`fY]W`Y`  
9fZU`fi b[ Yb`V]YhYbž`X]Y`ZØf`X]Y`A UbbgW`UZhYb`hk ]W`\_i b[ `j`cb`  
6YXYi hi b[ `g]bX`"

8]hY`Vfi bb`\_`b[ Y[ Yb`\_cbbhY`Xi fW`X]YgYb`G]Y[ `b]W`h`bi f`X]Y`  
Di b`\_hY`Ui Z`\_YfYa` `?cbhc`Yf`\_Ö`Ybž`gcbXYfb`Ui W`XUg`  
GY`Vghj YfhfUi Yb`ghAf`\_Yb`"9]b`gc`W`Yg`9f[ YVb]g`[ Y[ Yb`Y]bYb`  
\_cW`[ Y`\_UbXY`hYb`; Y[ bYf`\_Ubb`X]Y`8mbUa`\_]a`HYUa`Yf`\_YV`]W`  
VYY]bZi ggYb`i bX`XYb`; `Ui VYb`Ub`X]Y`Y][ YbYb`:`Ä`][ \_Y]hYb`  
ZØfXYfb`"≠`X]YgYa` `?cbhYI h`k ]fX`cZh`Yf`\_YbbVUfž`k ]Y`k ]W`h][ `XYf`  
dgmW`c`c[ ]gW`Y`5gdY`\_h]a`Gdcfh]gh`"

GhUh]gh]gW`Y`5bU`mgY`XYf`V]g`\_Yf][ Yb`  
GU]gcb`Y]ghi b[ Yb`

8]Y`V]g`\_Yf][ Y`GU]gcb`XYg`HGJ`; fYhghUXh`k Uf`[ YdfÄ[ hij`cb`  
9fZc`[ Yb`i bX`Y]bYf`ghUf`\_Yb`8YZYbg] Y`"Jcf`X]YgYf`B]YXYf`U[ Y`  
\_UhhYb`g]Y`]b`ZØbZ`Gd]Y`Yb`\_YX][ `]W`nk`Y]; Y[ Ybhc`fY`\_Ugg]Yfh`"æ`  
; Y[ YbgUhn`XUni`\_UhhX]Y`G; `8]hY`Vfi bb`bi b`a`]h`X]YgYa` `).\$`Y]bY`

\_`Uf`d cg]hj] Y`c ZYbg]j !ghUh]gh]gWXY`6]`Ub n`Ui Z[ YghY``h`

f`HUVY``Y.`? fY]g`][ U`GWk Y]bZi fh`%fGhUbX`j cf`XYf`B]YXYf`U[ YŁ  
f`Gd]Y`Y.`) `pG]Y[ Y.`( `pi bYbhgW]YXYb.`%`pB]YXYf`U[ Yb.`\$`pHcfY.  
%&`p; Y[ YbhcfY.`&

A ]h`X]YgYf`B]YXYf`U[ Y`\_`ObbhY`g]W`XUg`Hcfj Yf`A`hb]g`j cb  
; fYhghUXh`bi b`g][ b]Z]\_`Ubh`j YfgW`YW`hYfb`ž`k A`fYbX`8]hY`Vfi bb  
a ]h`X]YgYa`G]Y[ `ni XYa`k ]W`h][ Yf`Di b`hY`gUa a Y`b`\_`cbbhY`ž`i a  
g]W`Ui g`XYa`i bhYfYb`HY]`XYf`HUVY``Y`ni`VY`ZY]Yb``8]Y`GhUh]gh]\_`  
nY][ hž`XUgg`X]Y`:`A`][ \_Y]hž`HcfY`ni`Yfn]Y`Yb`i bX`[ `Y]W`nY]h][ `X]Y  
8YZYbg]j Y`ni`gh`A`f`\_`Yb`ž`YbhgW]Y]XYbX`Z0f`XYb`9fZc`[ `]b`XYf`@[ U  
]gh`

K Yhh`\_`Ua dZ`i bX`X]Y`dgmW`c`c`[ ]gW`Y  
? ca dcbYbhY`]a `: i » VU``

⇒ a `: i » VU``gd]Y`h`X]Y`a YbhU`Y`J cfVYfY]hi b[ `Y]bY`YbhgW]Y]XYbXY  
F c``Y``8]Y`Gd]Y`Yf`XYg`HGJ`; fYhghUXh`ghUbXYb`i bhYf`XYa`8 fi W`ž  
X]Y`V]g`Yf][ Yb`9fZc`[ Y`ni`VYgh`A]h][ Yb`ž`k Ug`]b`XYf  
GdcfhdgmW`c`c`[ ]Y`U`g`K Yhh`\_`Ua dZ`8 fi W`VYnY]W`bYh`k ]fX``8]Y  
GhfUhY[ ]Y`ž`g]W`]b`gc`W`Yb`DfYggg]hi Uh]cb`ni`VY`U`i dhYb`ž`]gh`Y]bY  
< YfUi gZcfXYfi b[ `Z0f`j ]Y`Y`HYUa`g``8Yf`HfU]bYf`k ]fX`bi b`[ YZcfXYfh  
gY]b`ž`X]YgY`G]hi Uh]cb`ni`UbU`mg]YfYb`i bX`X]Y`Gd]Y`Yf`a YbhU`ni  
gh`A`f`\_`Yb`

⇒ b`XYf`GdcfhdgmW`c`c`[ ]Y`k YfXYb`j YfgW]YXYbY`HYW`b]\_`Yb`k ]Y  
J]gi U`]g]Yfi b[ `i bX`5hYa`\_`cbhfc``Y`Y]b[ YgYhnhž`i a`Gd]Y`Yf`]b  
8 fi W`g]hi Uh]cbYb`VYggYf`ni`i bhYfgh`0hnYb``8]YgY`HYW`b]\_`Yb  
\_`ObbhYb`Z0f`; fYhghUXh`j cb`Bi hnYb`gY]b`ž`i a`Ui g`XYf`U`hi Y``Yb  
B]YXYf`U[ Y`ni`YfbYb`i bX`gh`A`f`\_`Yf`ni f0W`ni`\_`Y`fYb``8]Y  
8]g`fYdUb n`nk ]gW]Yb`XYb`YfghYb`Z0bZ`Gd]Y`Yb`i bX`XYf`U`hi Y``Yb  
B]YXYf`U[ Y`\_`Ubb`Y]bY`k ]W`h][ Y`@Y`\_]h]cb`0VYf`?cbg]ghYbn`i bX`X]Y  
Bch`k YbX][ \_Y]h`XUfghY``Yb`ž`]b`YXYa`Gd]Y`X]Y`j c``Y`@Y]ghi b[  
UVni fi ZYb`

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