

G; ' : `YbgVi f[ !< UbXYk ]hh. '5i Z'H]hY`^U[ X  
]a `Yb[ Yb `6i bXYg`][ U!F YbbYb

8]Y`G; ' : `YbgVi f[ !< UbXYk ]hh'ghfYVh`]b`XYf`bYi Yb  
6i bXYg`][ UgU]gcb`&\$&( #&) `XYb`H]hY`^Ubž`i bhYfghØhnh`j cb  
ghUf\_Ya `?UXYf`i bX`5a V]h]cbYb"

8]Y`G; ' : `YbgVi f[ !< UbXYk ]hh`]gh`VYfY]hž`]b`X]Y`bYi Y`GU]gcb`ni  
ghUfhYbž`X]Y`Ua ` : fY]hU[ ` [ Y[ Yb`XYb`< 7`9f`Ub[ Yb`YfÖZbYh`k ]fX"  
8]Y`GW`Ygk ] [ !< c`ghY]bYf`^UVYb`g]W`^c`^Y`N]Y`Y` [ YgYhnh`9]bY  
F ØW`\_Y`^f`Ub`X]Y`Gd]hnY`XYf`< UbXVU`^!6i bXYg`][ Už`k c`g]Y`ni `Yhnh  
]a `^U`^f`&\$%- `X]Y`A Y]ghYfgW`UZh`ZY]YfhYb" `8]Y`gdUbbYbXY  
?cbghY`^Uh]cb`XYf` : Uj`cf]hYb`a`UW`h`XUg`H]hY`fYbbYb`]b`X]YgYf  
GU]gcb`VYgcbXYfg`ZUgn]b]YfYbXž`XYbb`Ui`W`XYf`8cddY`a`Y]ghYf`G7  
A U[ XYVi f[ ž`X]Y` : ØW`gY`6Yf`]b`i bX`XYf`Yk ] [ Y`F`j`U`Y`H<K`?`Y`  
^UVYb`]`^f`5a V]h]cbYb`\_`Uf`\_ca`a`i`b]n]Yfh"

9fgh`\_Øfn`]W`^`Uh`X]Y`G; ' : `YbgVi f[ !< UbXYk ]hh`XYb`BYi`ni` [ Ub [   
8ca`Yb`Bcj`U`\_`Ub[ Y`\_ØbX][ hž`XYf`UV`Gca`a`Yf`&\$&) `HY]`XYg  
HYUa`g`gY]b`k`]fX" `8Yf`g`ck`Yb]gW`Y`F`YW`hgUi`»`Yb`gc`^`Zf]gW`Yb  
K`]bX`]b`X]Y`A`UbbgW`UZh`Vf]b[ Ybž`k`À`^fYbX`ni` [ `Y]W`^X]Y`J`Yfhf`À` [ Y  
j`cb`^`^`Ub`<`UbgYb`i`bX`5\_gY`^`<`cf[ Yb`b]W`hj`Yf`Àb` [ Yfh`k`i`fXYb"  
8]YgY`J`Yf`ÀbXYfi`b[ Yb`]a` `?UXYf`g]bX`HY]`Y]bYf`ghfU]hY` [ ]gW`Yb  
BYi`Ui`gf]W`hi`b[ ž`X]Y`XUfUi`Z`UVn]Y`hž`a` ]hhY`!`i`bX`^`Ub[ Zf]gh][  
\_cb\_i`ffYbnZ`À`][ `ni`V`Y]VYb" : Øf`X]Y`U`\_`hi`Y`^`Y`GU]gcb`^]Y[ h`Y`XcW`  
XYf` : c\_i`g`\_`Uf`Ui`Z`XYa` `gcZcfh][ Yb`9fZc` [ "

< YfUi`gZc`fXYfi`b[ Yb`UVYf`Ui`W`^`7`^`Ub`W`b

⇒`gY]bYf`9]bgW`Àmi`b[ `XYf`A`Y]ghYfgW`UZh`gUgd]fUb`hYb`^`Uh`5`ZfYX  
;`]g`Ugcbž`XYf`6i`bXYghfU]bYfž`X]Y` : `YbgVi`f[ Yf`i`bX`A`U[ XYVi`f[ `U`g  
<Ui`dh`cb\_i`ffYb`hYb`]XYbh]Zn]Yfh" `9f`VYhc`b`hž`XUgg`XUg`H]hY`fYbbYb

]b`X]YgYf'GU]gcb`Ui ZfY[ YbXYf'i bX`cZZYbYf']gh`U`g`Y`ni j cf`"GY]bYf  
A Y]bi b[ `bUW`\_`ObbhY': `YbgVi f[ `Ui Z[ fi bX`XYf  
J Yf`Yhni b[ gdfcV`Ya Y`VY]`A U[ XYVi f[ `gc[ Uf`Y]bYb`"Y]W`hYb`J cfhY]`  
`UVYb" 9g`k ]fX`Y]bYb`8fY]\_Ua dZ`cXYf`gc[ Uf`Y]bYb`J ]Yf\_Ua dZ  
[ YVYb ž`gc` ; ]g`Ugcb"

8Yf`Gdcfh]W`Y`@Y]hYf`@† Vca ]f`J fUb`Yg`ØVYfb]a a h`X]Y  
: Uj cf]hYbfc`Y`a ]h`Ni j Yfg]W`hi bX`VYhcbh`X]Y`E i U`]h`hYb`]a  
? UXYf" K ]f`UVYb`X]Y`?ca dYhYbnž`i a` [ Ubn`cVYb`a ]hni gd]Y`Yb"  
K ]f`k c`Yb`A Y]ghYf`k YfXYb ž`Yf`\_`Àfh`Yf" `hYfb`[ ]Vh`Yg`XUg  
J YfhfUi Yb`]b`X]Y` : À`][ \_Y]hYb`XYf`Gd]Y`Yfž`XcW`Yf`VYhcbh`Ui W`ž  
XUgg` ; YXi `X`bchk YbX][ `]gh"8]Y`A UbbgW`UZh`i a`X]Y`X`Àb]gW`Yb  
C`ma d]Ug]Y[ Yf`i bX`G]`VYfa YXU]`Yb! ; Yk ]bbYf`æ`UbbYg` ; c`U`U`Uh  
XUg`DchYbn]U`ž` ; fc» Yg`ni `YffY]W`Yb"

## E i U`]h`h]a `? UXYf`i bX`bYi Y`GhfUhY[ ]Yb

@† Vca ]f`J fUb`Yg`Vf]b[ h`X]Y`9fZc`[ gW`UbW`b`XYf`G; `Ui ZXYb  
Di b\_h` K ]f`a ØggYb`i bgYf`Hcd!B]j YUi `YffY]W`Ybž`i bX`XUg  
\_cbghUbh" `9f`YVh`X]Y`Bchk YbX][ \_Y]h`Yfj cfž`]b`XYf`8YZYbg]j Y  
YZZ]n]YbhYf`ni `k YfXYb`i bX`a Y`f`J Uf]Uh]cbYb`]bg`Gd]Y`ni `Vf]b[ Yb`  
8]Y`F ØW`\_Y`f`j cb`Hcf`ØhYf`A Uhg`C`ggcb`i bX`7c!HfU]bYf`5bXYfg  
9[ [ Yfh`k ]fX`XYb`HYUa [ Y]gh`i bX`X]Y`ghfUhY[ ]gW`Y`H]YZY`Yf`Ø`Ybž  
bUW`XYa `9[ [ Yfh`gY`Vgh]j cb`&\$\*\$`V]g`&\$%+`ZØf`X]Y`G; [ Ygd]Y`h  
U`h`

6YgcbXYfg`]bhYfYggUbh`]gh`XYf`BYi ni [ Ub[ `B]WUg`? ]f`Y`Ô`\_Yž`XYf  
bYi Y`a di `gY`ZØf`XYb`fYW`hYb`F ØW`fUi a`Vf]b[ Yb`gc`"HfU]bYf  
B]W`Y`^? f]W`Ui `YVh`gY]bY`GhUV`]h`h]a `Gd]Y`Y`f`j cfž`Vf]b[ h  
YXcW`[ `Y]W`nY]h[ `X]Y`< YfUi gZcfXYfi b[ `]b`X]Y`8]g`\_i gg]cbž`XUgg  
Yf`g]W`bcW`Ub`XUg`HYUa `i bX`XUg`GmgHYa` [ Yk `Ø`bYb`a`i gg"8]Y  
9fk Ufhi b[ Yb`g]bX`cW`ž`i bX`? f]W`Ui `VYhcbhž`k ]Y`k ]W`h[ `Yg`]ghž  
g]W`\_cbh]bi ]Yf`]W`ni j YfVYggYfbž`i a`X]Y`7`Ua d]cbg!@YU[ i Y!  
E i U`]Z]\_Uh]cb`ni `YffY]W`Yb"

I a`]b`XYf`\_ca`a YbXYb`Gd]Y`nY]h`gdcfh]W`YfZc`[ fY]W`ni `gY]bž  
a ØggYb`X]Y` : `YbgVi f[ Yf`b]W`h`bi f`ghfUhY[ ]gW`Y`5bdUggi b[ Yb  
j cfbY`a Ybž`gcbXYfb`Ui W`]b`XYf`C`ZZYbg]j Y`bYi Y`K Y[ Y`[ Y`Yb"

æ`YhnhYb`æ\`f`U[ `X]Y`J`YfUbhk`cfhi`b[ `ni`gY\`f`Ui`Z`XYa` ``]b`\_Yb`  
F`ØW`fUi`a` ž`Yf`\_`Àfh`?`f]W`\_Ui` `i`bX`ZcfXYfh`Y]bY`\_Ui`g[`Yk`c[`YbYfY`  
J`YfhY`]i`b[ `XYg`Gd]Y`g`ZØf`Y]bY`j`YfVYggYfhY`@Y]ghi`b[ ``8]Y`HYUa`g`  
\UVYb`\_Ui`Z[`fi`bX`XYf`ghUf`\_Yb`?`cb`\_i`ffYbn`\_Y]bY`NY]h`ZØf`:`Y\`Yf``

8]Y`k`]fhgW`UZh`]W`Y`6YXYi`hi`b[ `Y]bYf`E`i`U`]Z[\_Uh]cb`ZØf`X]Y`  
7\`Ua`d]cbg`@YU[ `i`Y`k`]fX`YVYbZU`g`b]W`h`i`bhYfgW`Àhnh``9]b`  
YfbYi`hYf`9]bni`[ `]b`X]Y`?`Øb][`g`\_`UggY`\_`ØbbhY`YbhgW`Y]XYbX`ZØf`X]Y`  
Z]bUbn]Y``Y`GhUV`]h`Àh`XYg`J`YfY]bg`gY]b``: `Øf`X]Y`:`YbgVi`f[`Yf`k`Uf`  
X]Yg`ni`Yhnh]b`XYf`Gd]Y`nY]h`&\$`%`#`&`&`a`Ò[ `]W`ž`i`bX`XUg`HYUa`  
a`ØW`hY`Xf]b[ `YbX`Ub`X]YgY`9fZc`[`ggYf]Y`Ub`\_bØdZYb``

K`À`fYbX`g]W`X`X]Y`G;`:`YbgVi`f[`!`<`UbXYk`]hh`Ui`Z`X]Y`bYi`Y`GU]gcb`  
j`cfVYfY]hYhž`nY][`Yb`X]Y`YfghYb`5i`gV`]W`!`5bU`mgYb`i`bX`  
J`cf\`YfgU[ `Ybž`XUgg`XYf`?`Ua`dZi`a`XYb`H]hY``\`ÀfhYf`XYbb`Y`  
k`YfXYb`\_`ØbbhY``8]Y`A`UbbgW`UZh]gh`VYfY]hž`U``Yg`ni`[ `YVYb`i`bX`  
Ui`Z`X]Y`9fZc`[ `Y`XYf`YhnhYb`æ\`f`Y`Ui`Zni`VUi`Ybž`Ui`W`k`Ybb`  
<]bXYfb]ggY`]a`K`Y[ `ghY\`Yb``8Yf`5i`ZhU`\_h[ `Y[ `Yb`9f`Ub[ `Yb`k`]fX`  
ghY``j`YfhfYhYbX`ZØf`X]Y`[ `YgUa`hY`GU]gcb`gY]b.`9]b`YW`hYf`?`Ua`dZ`  
i`a`YXYb`Di`b`\_h`i`bX`XYb`HfUi`a`j`cb`XYf`A`Y]ghYfgW`UZh``

8YhU]`g

6Ygi`W`Yb`G]Y`i`bg`Ui`Z.`a`Y]b!VYf`]b`bYh`