

## 8 ]Y '[ fÒ» hYb '? `YhhYfn]hUhYž`X]Y`^Y [ YÄi » Yfh'k i fXYb

J cb '? `YhhYf`Y [ YbXYb`V]g`\]b`ni `5i hcFYb`a ]h`Y]bYf`J cf`]YVY  
Zøf`gW bYYVYXYW\_hY` ; ]dZY`k YfZYb`k ]f`Y]bYb`6`]W`Ui ZX]Y  
[ fÒ» hYb '? `YhhYfn]hUhYž`X]Y`^Y [ YÄi » Yfh'k i fXYb`C V`Yg`g]W  
i a `X]Y`5W`hhUi gYbXYf`XYg`< ]a U`UmUž`X]Y`6][ !K U`!  
9f\_]a a i b [ Yb`?U`]Zc`fb]Ybg`cXYf`X]Y`VYgW`Y]XYbYfYb  
<][ \`UbXg`GW`ch`UbXg`\UbXY`hž`X]Y`6Yf[ Y`\UVYb`A`ÄbbYf`  
i bX` : fUi Yb`gY]h`>\f\i bXYfhYb`XUni` ]bgd]f]Yfhž`X]Y` : YXYf`ni  
DUd]Yf`ni `Vf]b [ Yb`i bX`mf]gW`ni `k YfXYb`" I bX`k Yf`\_Ubb`Yg  
]\bYb`j YfØVY`b3`6Yf[ `UbXgW`UZhYb`VY`YfVYf[ Yb`Y]b][ Y`XYf`  
k ]`XYghYb`i bX`UhYa` VYfUi` VYbXghYb`@UbXgW`UZhYb`XYf`9fXY`  
`&`XYb`6Yf[ Yb`YVhYb`X]Y`@Y [ YbXYb`j cb`Y]bghi bX`ghUfVYb  
Ui ZX]Yf`Gi W`Y`bUW`Fi \a`"K Yb`\_ÖbbhY`a Ub`VYggYf`]b  
i bgYfYf`@]ghY`XYf`/ Ua`d^Y`]d/

J cb '? `YhhYf`Y [ YbXYb`V]g`\]b`ni `5i hcFYb`a ]h`Y]bYf`J cf`]YVY`Zøf`  
gW bYYVYXYW\_hY` ; ]dZY`k YfZYb`k ]f`Y]bYb`6`]W`Ui ZX]Y [ fÒ» hYb`  
? `YhhYfn]hUhYž`X]Y`^Y [ YÄi » Yfh'k i fXYb

C V`Yg`g]W`i a `X]Y`5W`hhUi gYbXYf`XYg`< ]a U`UmUž`X]Y`6][ !K U`!  
9f\_]a a i b [ Yb`?U`]Zc`fb]Ybg`cXYf`X]Y`VYgW`Y]XYbYfYb`<][ \`UbXg`  
GW`ch`UbXg`\UbXY`hž`X]Y`6Yf[ Y`\UVYb`A`ÄbbYf`i bX` : fUi Yb`gY]h`  
>\f\i bXYfhYb`XUni` ]bgd]f]Yfhž`X]Y` : YXYf`ni`DUd]Yf`ni `Vf]b [ Yb`  
i bX`mf]gW`ni `k YfXYb`"

I bX`k Yf`\_Ubb`Yg`]\bYb`j YfØVY`b3`6Yf[ `UbXgW`UZhYb`VY`YfVYf[ Yb`  
Y]b][ Y`XYf`k ]`XYghYb`i bX`UhYa` VYfUi` VYbXghYb`@UbXgW`UZhYb`XYf`  
9fXY`" &`XYb`6Yf[ Yb`YVhYb`X]Y`@Y [ YbXYb`j cb`Y]bghi bX`ghUfVYb  
Ui ZX]Yf`Gi W`Y`bUW`Fi \a`"K Yb`\_ÖbbhY`a Ub`VYggYf`]b i bgYfYf`  
@]ghY`XYf`VYghYb`? `YhhYfn]hUhY`Yfk`Ä\bYbž`X]Y`^Y [ YÄi » Yfh'k i fXYb3



V]g`Xi`Y]bYb`UbXYfYb`YfUi`ZVYgWk`Ofghz`Yhk`Ug`AfhYfz`Y]b  
V]ggWYb`Y`f[`Y]n[`Yfz`Y]b`V]ggWYb`[`YZA`f`]WYf" ` `æY`G]a`dgc b

8 Ug`@VYb`k`]fX`Ui`Z`XUg`K`YgYbh]WY`fYXi`n]Yfh`K`Ybb`Xi`k`Ufa`ž  
fY[`Y`a`A»][`ž[`Ygi`bXž`b]W`h`Xi`fgh][`cXYf`i`b[`f][`V]ghz`XUbb`V]gh  
Xi`b]W`h`Ui`Z]bYa`6Yf[` `?`YhhYfb`]b`XYf`<`O`Y`]ghz`U`g`k`ØfXY  
a`Ub`a`]h`XYa`?`cdZ[`Y[`Yb`Y]bY`A`Ui`Yf`gW`U[`Yb` `Yg`]gh[`fc»`Ufh][`ž  
k`Ybb`a`Ub`Ui`Z`O`fh" ` `7`f]g`8`Ufk`]b

=[`YbXk`c`nk`]gWYb`XYa` `i`»`XYg`5i`Zgh]Y[`g`i`bX`XYa` `;`]dZY`gh  
X]Y`5bhk`cfh`Ui`Z`XUg`F`A`hgY`ž`k`Ufi`a`k`]f`\_`YhhYfb" ` `;`fY[`7`X

9g`]gh`]a`a`Yf`k`Y]hYf`U`g`Yg`Ui`gg]Y`h"9g`]gh`]a`a`Yf`[`fO»`Yf`U`g`Yg  
Ui`gg]Y`h"i`bX`Yg`]gh`]a`a`Yf`gW`k`]Yf][`Yfz`U`g`Yg`Ui`gg]Y`h"  
F`Y]b`c`X`A`Y`gg`b`Y`f

U`h1`X]Y`6Yf[`Y`XYf`G]YffU`B`Yj`UXU`2`æ`b`A`i`]f`]gh`ZØf`Y]b][`Y`XYf  
[`fO»`hYb`?`YhhYfn]hUhY`j`YfUbhk`cfh]W

8]Y`6Yf[`Y`fi`ZYb`i`bX`]W`a`i`gg[`Y`Yb" ` `æ`b`A`i`]f

K`Ybb`G]Y`g]W`XUfUi`Zj`cfVYfY]hYbž`Y]bYb`6Yf[`ni`VYghY][`Yb`  
dUW`Yb`G]Y`Y]b`Y]W`hYg`<`Yfn" ` `8`Ub`A`Um

6Yf[`ghY][`Yb`]gh`Ui`g[`YXY`b`hY`DYf]cXYb`]bhYbgj`Yf`@Ub[`Yk`Y]Yž  
i`bhYfVfc`WYb`]cb[`Y`Y[`Ybh]WYb`A`ca`YbhYb`di`fYb`GW`fYW`Ybg"  
`I`bVY`\_`Ubbh

6Yf[`Y`g]bX`b]W`h`ZU]f`cXYf`i`bZU]fž`g]Y`g]bX`bi`f[`YZA`f`]W" ` `"  
F`Y]b`c`X`A`Y`gg`b`Y`f

⇒W`XYb`\_`Y`Ub`b]W`hgž`k`Ybb`]W`\_`YhhYfYž`k`Ug`HY]`XYg`F`Y]nYg`]gh"  
⇒W`\_`cbnYbhf]YfY`a`]W`XUfUi`Z`XUg`Ui`gni`ZØ`fYbž`k`Ug`j`cf`a`]f  
]Y[`h" ` `5`YI`<`cbbc`X

C`b`Y`Y]b`GY]`[`]Vh`Yg`\_`Y]bY`5b[`ghz`XYbb`Y]b`Gh`fn`]gh  
i`bXYb`\_`VUf" ` `7`Uh`Yf]bY`8Yghj`Y`Y`Y

6Yf[ ghY][ Yb`]gh'a Y]bY`@Y]XYbgWUZh i bX`XYf`; fi bXž: fUi Yb  
Xi fW`a Y]bY`9I dYX]h]cbYb`ni`ghÅf\_Yb" ` `GUa ]bU`6U][

8Yf`; ]dZY``]gh`bi f`X]Y`\"U`VY`GhfYW\_Y" ` `9X`J ]Yghi fg

9g[ ]Vh`Y]bY`ghÅbX][ Y`GdUbbi b[ `VY]a `?`YhhYfb`i bX`Y][ Ybh`]W  
VY]`U`Yb`9f\_i bXi b[ Ybž`nk ]gW`Yb`XYa `J cfXf]b[ Yb`]bg  
I bVY`UbbhY`i bX`XYa `J Yfgi W`ž`b]W`h`ni`k Y]hj`cfni`Xf]b[ Yb``8 Ug  
6YghYž`k Ug`YXYf`j`cb`i`bg`hi`b`\_Ubbž`]ghž`X]YgY`@]b]Y`j`cfg]W`h][ `ni  
VYgW`fY]hYb" ` `5`YI`<`cbbc`X

K Ybb`X]Y`@Yi hY`Yhk Ug`; fc»Yg`]a `: fY]Yb`ZØf`]\f`9[ c`hi`b`k`c`Ybž  
`UggYb`G]Y`g]Y`gW`bYVYXYW`hY`6Yf[ Y`Yf`\_]a`a`Ybž`UbghUhh`H]YfY  
ni`YfgW]Y»Yb" ` `?`cbfUX`5b\_Yf

K ]f`YfcVYfb`b]W`h`XYb`6Yf[ ž`gcbXYfb`i`bg`gY`Vgh" ` `9Xa`i`bX  
<`]`Ufm

`U`h1`?`YhhYfn]hUhY`Y`WUd]hUb`2`HfUi`a`nY]h`9`7Ud]hUb`\"Uh`Y]b][ Y  
X]YgYf`?`YhhYfn]hUhY`]bgd]f]Yfh

?`YhhYfb`]gh`Y]b`V]ggW`Yb`k`]Y`GY`VghVYzf]YX][ i`b[ `Yg`a`UW`h  
n]Ya``]W`j`]Y`GdU»`XUVY]ž`UVYf`b]Ya`UbX`k`]`X]W`k`]f`\_]W`XUfØVYf  
fYXYb`\"ØfYb`cXYf`g]W`6`]XYf`j`cb`X]f`XUVY]`UbgY`Yb" ` `5bXm  
?]f\_dUhf]W\_

≠W`V]b``]YVYf`]b`XYb`6Yf[ Yb`i`bX`XYb\_Y`Ub`; chž`U`g`]b`XYf  
?]fW`Y`Ub`X]Y`6Yf[ Y`ni`XYb\_Yb" ` `æ`b`A`i`]f

A ]h`XYf`VYghYb`5i`gfØghi`b[ `XYf`K`Y`h`]gh`XYf`A`Ubb`a`]h  
gW`YW`hYa`i`fhY`]gj`Yfa`Ò[ Yb`]b`@YVYbg[ YZU`f" ` `?`Òb][ `]W`Y  
F`cV]bg

K Y]`Yg`XU`]gh" ` `; Ycf[ Y`A`U`c`fmg`5bhk`cfh`Ui`ZX]Y`: fU[ Y  
K`Ufi`a`k`]gh`Xi`XYb`A`h``9j`YfYgh`VYghY][ Yb3`"

?`YhhYfb`]gh`XUgž`k`Ug`]W`h`i`Y" ` `5bUhc`]6ci`\_fYYj

Nk ]gWYb : fY] \Y]hi bX`NU\`Yb`VYghY\`h`Y]bY`Y]bZUWY ; `Y]W i b [ .  
>`a Y`f`A YbgWYbžXYghc`k Yb][ Yf` : fY] \Y]h" ` `F cmU`F cVV]bg

K ]f`g]bX`5ZZYb` `k ]f`gc`hYb`\_`YhhYfb" ` `5`YI` < cbbc`X

; fc»Y`8]b[ Y`k YfXYb`j c`VfUW hžk Ybb`A YbgWYb`i bX`6Yf[ Y  
Ui ZY]bUbXYf`hfYZZYb" ` `K ]`]Ua`6`U\_Y

?`YhhYfb`]gh`a Y]bY`?i bgh`≠W`VY`\_ca`a Y`gc`j ]Y` : fYi XY`i bX  
6YZf]YX][ i b[ `XUj cb" ` `>]a`a m7\]b

A ]h`Y]bYa`gWk YfYb`F i W\_gUW`\_j cb` : Y`gVfcW\_Yb`ni` : Y`gVfcW\_Yb  
ni`gdf]b[ Yb`i bX`b]Ya`U`g`ni`ZU`Ybž`]gh`Y]bZUWYfž`U`g`Yg`g]W  
Ub\`Øfh`Xi`\_Ubbgh`Y]bZUW`b]W`h`ZU`Ybž`k Ybb`Xi`]b`XYb`F` \m\`a`i`g  
XYg`HUbnyg`\_ca`a gh" ` `>UW`?Yfci UW

6Yf[ Y` \UVYb`Y]bY`5fhž`a ]h`GY`VghØVYfgW`Åhni b[ `i`a`ni`[ Y` \Yb" ` `.  
<Yfa`Ubb`6i` \`

`U`h1` ?`YhhYfn]hUhY`5W`hhUi`gYbXYf`2`HfUi`a`nY]h`9Xi`fbY`DUgUVUb  
k`Uf`X]Y`YfghY` : fUi`ž`X]Y`U`Y`%(`5W`hhUi`gYbXYf`VYgh]Y[ Yb` \Uh

B`UW`XYa` `]W`Ui`ZXYf`[`Ubnyb`K`Y`h`[`Y`\_`YhhYfh`V]b`i`bX`Ua` ` : i` »`Y  
Y]bYg` , "\$\$\$`a` \c` \Yb`6Yf[ Yg`k`Ufž`k`i`fXY`a` ]f`\_`Ufž`k` ]Y`\_`Y]b`k` ]f  
]a`J`Yf[ `Y]W`ni`f`BUhi`f`g]bXž`k`Ug`a` ]W`X`Uni`VfUW`hYž`g]Y`ni  
fYgdY`\_h]YfYb" ` `9Xi`fbY`DUgUVUb

≠W`X`UW`hYž`XYb`8Yj`]`g`H\`i`a`V`ni`VYghY][ Ybž`k`ØfXY`U`Yg  
VY`YVYbž`k`Ug`]b`a`Y]bYa`@YVYb`b]W`h`gh]a`a`hY" `5a`9bXY` \Uh`Yg  
bUhØf`]W`ZUgh`b]W`hg`[`Y`ÅbXYfh`5VYf`]W`YfbhY`ni`gW`ÅhnYbž`XUgg  
6Yf[ Y`gW`YW`hY`6Y` \`Å`hYf`ZØf`Hf`Åi`a`Y`g]bX" ` `æb`?fU`\_`Ui`Yf

9g`[ ]Vh`bi`f`XfY]`GdcfhUfhYb.`Gh]Yf`\_Ua`dZž`A`chc`fgdcfh`i`bX  
6Yf[ ghY][ Yb`/`U`Yg`UbXYfY`g]bX`bi`f`Gd]Y`Y" ` `9fbYgh`<`Ya`]b[ k`Um

9g`[ ]Vh`\_Y]b`gW`YW`hYg`K`YhhYfž`bi`f`i`bUb[ Ya`YggYbY`?`Y]Xi`b[ "  
`G]f`F`Ubi`d` \` : ]YbbYg

A Ub`\_Ubb`b]W`h`Yk ][ `Ui Z`XYa `; ]dZY`V`Y]VYb/Xi `a i ggh`k ]YXYf  
fi bhYf`K Ufi a `g]W`U`gc`ØVYf\Ui dh`X]Y`A Ø\Y`a UW`Yb3`Bi f`gc  
j ]Y`. `K Ug`cVYb`]ghž`k Y]» ž`k Ug`i bhYb`]ghž`UVYf`k Ug`i bhYb`]ghž`k Y]»  
b]W`hž`k Ug`cVYb`]gh`A Ub`\_`YhhYfhž`a Ub`g]Y\`h`A Ub`ghY][ h`\]bUVž  
a Ub`g]Y\`h`b]W`h`ia Y\`fž`UVYf`a Ub`\Uh`[ YgY\`Yb" ` `FYb`Å`8Ui a U`

9g`]gh`Y]bY`Fi bXfY]gY"8Yf`5i Zgh]Y[ `ni a `; ]dZY`][gh`cdh]cbU`ž`XYf  
5Vgh]Y[ `cV`][ Uhc]gW`" ` `9X`J ]Yghi fg

ϕ`XYb`6Yf[ Yb`[ ]Vh`Yg`bi f`nk Y]; fUXY.`9bhk`YXYf`Xi `\_Ubbgh`Yg  
cXYf`Xi `\_Ubbgh`Yg`b]W`h" ` `Fi ghm`6U]`Y

B]Ya Ub`X`ghY][ h`Ui g`k ]ggYbgW`UZh`]W`Yb`; fØbXYb`Ui Z`6Yf[ Y"8]Y  
K ]ggYbgW`UZh`k ]fX`j Yfk YbXYhž`i a `; Y`X`ZØf`X]Y`9I dYX]h]cbYb`ni  
gUa a Y`bž`UVYf`a Ub`\_`YhhYfh`k ]f`\_]W`Ui g`GdU»" ` `9Xa i bX  
<]`Ufm

9g`]gh`j Ò`][ `i bgW`]W`\_]W`ž`g]W`\_]b`XYb`6Yf[ Yb`j c`ni ghcdZYb` `W`  
a ÒW`hY`a ]h`\cW`[ Y`Y[ hYb`: Ø» Yb`j cf`XYa `: Yi Yf`ghYfVYb`i bX`Y]b  
; `Ug`F`chk Y]b`]a `5`hYf`j cb`Yhk U`- ) `J\`fYb`hf]b`\_Yb" ` `?Ybhc b  
7cc`

9]bY`9fghVY[ Y\`i b[ `]gh`Y]bY`GW`ØdZ`b[ `]a `[ `Y]W`Yb`G]bbY`k ]Y  
Y]b`; Ya `Å`XY`cXYf`Y]b`@YX" ` `F`cmU`F`cVV]bg

8]Y`Yb][ Ybž`X]Y`ni `6Yf[ [ ]dZY`b`fY]gYbž`g]bX`\U`V`]b`g]W`gY`Vgh  
j Yf`]YVh`i bX`\U`V`]b`XUg`J Yf[ YggYb" ` `F`cVYfh`A UW`Uf`UbY

8Yf`; ]dZY`][gh`i bgYf`5bhf]YVž`UVYf`XYf`5i Zgh]Y[ `Ub`g]W`n`Å`\`h" ` `?  
cbfUX`5b`\_Yf

`U`h1 `?`Y`hhY`fn]hUhY`D]bhYfYgh`D]b`2

@Y]hV]`X.`8fYUa`gh]a`Y

6Ygi W\Yb`G]Y`i bg`Ui Z.`Y]bY!fY]gY"XY