

8gWxi b[Y`!@Y[YbXYb`]a`GhfY]h.
9a ch]cbYb`i bX`7\Ucg`]b`XYf`F H@!G\ck`°

⇒a`FH@8gWxi b[Y`WJa d`[Y`hYg`\Y]»`Yf.`HfÅbYb`i bX
GhfY]h][_Y]hYb`dfÅ[Yb`XUg`đ V]`Ài a` / ei ch/G\ck Xck b`XYf
8gWxi b[Y`!@Y[YbXYb/ ei ch"

⇒a`8gWxi b[Y`WJa d`XYf`FH@FYU`]hmg\ck` \Uh'g]W`X]Y`Gh]a a i b[
]b`XYf`U_hi Y`Yb`GhUZZY` G\ck Xck b`XYf`8gWxi b[Y`!@Y[YbXYb
Ui Zi b[Yk`Ò\b`]W`Y`K`Y]gY`[Yk`UbXY`h"K`Å\fybX`Y]b][Y
HY]`bY\`a`Yf`[Y\Y]a`Y`6Y]W`hYb`UV`Y[Ybž`[]Vh`Yg`ni`[`Y]W`Ui`W
\]h][Y`8]g_i`gg]cbYbž`X]Y`Z0f`i`bfi` \Y`gcf[Yb`"6YgcbXYfg`X]Y
BYi`Ub_0a`a`]b[Y`a`0ggYb`g]W`Yfgh]b`X]Y`VYghY\YbXY` ; fi`ddY
Y]b[`]YXYfbž`k`Ug`ni`GdUbbi`b[Yb`Z0\fh"

⇒b`XYf`j`]YfhYb` : c`[Yž`X]Y`Ua`GcbbhU[`Ui`g[YghfU\`h`k`i`fXYž`_cbbhY
a`Ub`X]Y`?cbZ]_hY`nk`]gW`Yb`XYb`7Ua`dYfb`XYi`h]W`VYcVUW`hYb`"
J`cf`U`Ya`X]Y`B`UW`f0W`Yf]b`9`YbU`A`]fUgž`X]Y`gY]h`XYa`%*"\$, "&\$&(
]a`7Ua`d`]ghž`gcf[h`Z0f`5i`ZfY[i`b["G]Y`gW`i`[`]`cfž`X]Y`i`b[Y`]YVhY
B`UW`hk`UW`Y`i`a`ni`cf[Ub]g]YfYbž`k`Ug`ni`f`5i`gY]bUbXYfgYhni`b[`a`]h
<Ub_U`F`UW`k`]hni`Z0\fhY`"F`UW`k`]hni`ž`X]Y`gW`cb`"Åb[Yf`]a`8gWxi b[Y`
]ghž`Ya`dZU`A`]fUgž`g]W`ni`b`ÅW`gh`a`]h`8Ya`i`h]b`X]Y` ; fi`ddY`ni
]bhY[f]YfYb`"A`]fUg`\]b[Y[Yb`nY][hY`g]W`i`bVYY]bXfi`W`h`i`bX
Ybh[Y[bYhY.`A`Y]b`7\YZ`]gh`\]Yf`b]Ya`UbX"

D]_UbhY`GhfY]h][_Y]hYb`i bX`Ya`ch]cbU`Y
A`ca`YbhY

8cW`b]W`h`bi`f`A`]fUg`i`bX`F`UW`k`]hni`_Åa`dZYb`i`a`X]Y`CVYf\UbX`]a
7Ua`d`"5i`W`8Ub]Y`U`8Ubb]`60W`bYf`i`bX` ;]i`]U`G]Y[Y`ZUbXYb
g]W`]a`GhfY]h`0VYf`XYb`?cW`X]Ybgh`k`]YXYf`"K`Å\fybX`XUg
 ; YfUb[Y`]a`@U[Yf`ni`bY\`a`Yb`_0bbhYž`k`Uf`Yg`?UXYf`@ch`ž`X]Y

YVYbZU`g`]\fY`Gh]a a Y`Y]bVfUW`hY` `gY`f`ni a `A]ggZU`Yb`j`cb
G]Y[Y`" ?UXYfž`a UW`XY]bY`GYbXYnY]h`b]W`h`a `]h`a `]fž` `cbhYfhY
G]Y[Y`ž`U`g`@ch`j`Yfgi`W`hY`ž`g]W` `]b`X]Y`8]g`_i`gg]cb`Y]bni`gW`U`hYb`"

≠ba`]hYb`X]YgYf`?cbZ]_hY`[UV`Yg`YXcW`Ui`W`h]YZ[fØbX][Y
; Ygdf`ÅW`Yž`X]Y`X]Y`HY]`bY`a`Yf`Ya`ch]cbU`b`Å`Yf
ni`gUa`a`YbgW`k`Y]»Yb`"H`c`fghYb`@Y[Uhž`XYf`U`g`9!`!`i`»VU`Yf
VY`_Ubbh]ghž`cZYbVUfhY`XYb`UbXYfYb`HY]`bY`a`Yfb`gY]bY
VYk`Y[YbXY` ; YgW`]W`hY`"9f`Yfn`Å`hY`j`cb`Y]bYa` `J`cfZU`ž`VY]`XYa
Yf`]b`B`chk`Y`f`[Y`UbXY`h`U`hY`i`bX`]a` `Ni`[Y`XYggYb`_Y]bYb
5`_c`c`a`Y`f`_cbgi`a`]Yfh`"8]Y`UbXYfYb`7Ua`dYf`Å`ØfhYb`g]W`h]W`
VYhfcZYb`ni`"

9`YbU`A`]fUg`VfUW`hY`YVYbZU`g`dYfgØb`]W`Y`GhØfi`b[Yb`ni`f
GdfUW`Yž`U`g`g]Y`]a` `; Ygdf`ÅW` `a`]h` ;][]`6]fcZ]c`ØVYf`]\fY
8YdfYgg]cbYb`gdfUW`" `K`Ybb`]W`g]Y`Ub[YgW`Ui`h`Å`UVYž`k`i`gghY
]W` .`≠W` `a`i`gg`k`Y]hYf`_Åa`dZYbž` `Yf`_`ÅfhY`g]Y`"≠`fY`HcW`hYf`gY]`ZØf
g]Y`Y]bY`[fc»Y`E`i`Y`Y`XYf`?fUž`ž`X]Y`g]Y`]b`gW`k`YfYb`NY]hYb
i`bhYfghØhY`"

8gW`i`b[Y`dfØZi`b[`a`]h`9`_Y`ZU`_hcf`

9]bY`k`Y]hYfY`YI`ch]gW`Y`<YfUi`gZcfXYfi`b[`k`UfhYhY`]a` `HUbhY!
8]`Ya`a`U!@UXYb`ž`k`c` ;][]`6]fcZ]c`j`cb`A`]fUg`ZØf`X]Y
8gW`i`b[Y`dfØZi`b[`Ui`g[Yk`Å`h`k`i`fXY`"8cfh`a`i`gghY`Yf`i`bhYf
UbXYfYa` `?U`_Yf`U`_Yb`i`bX`_Y]bY`?fc`_cX]`Y`n`Å`Ybž`k`Ug`]\a
g]W`h]W`G`W`k`]Yf][`_Y]hYb`VYfY]hYhY`"6YgcbXYfg`XYf`9]b`_Ui`ZgnYhY`
a`]h`XYb`gY`hgUa`Yb`@YVYbga`]hY`b`VfUW`hY`]\b`Ui`g`XYa` `?cbnYdh`
`&%`A`UXYb3`K`Ug`]gh`Y]b`A`UXYb3`ZfU[hY`Yf`YfghUi`bh`Hfch`n`XYf
V]nUffYb`<YfUi`gZcfXYfi`b[Yb`_cbbhY`Yf`Xi`fW`gY]bYb`J`Yfgi`W`ž
bYi`b`GhYfbY`ZØf`XUg`7Ua`d`ni`Yfgd]Y`Ybž`Y]bYb`k`Yfhj`c`Yb`6Y]hfU[
`Y]ghYb`"

8]Y`U`_hi`Y`Y`GhUZZY`ZY]Yfh`ni`XYa` `XUg`&\$!`Å`f][Y`6YghY`Yb`XYf
G`ck`ž`X]Y`&\$\$(`Yfgha`U`g`Ui`ZF`H`@`Ui`g[YghfU`h`k`i`fXY`"i`bhYf`XYa
A`chc` `@Y[YbXYb` `]gh`Yg`Y]bY`5fh`K`]YXYfgY`Yb`ZØf`ZfØ`YfY
HY]`bY`a`Yfž`X]Y`]b`j`cf`Yf][Yb`GhUZZY`b`VYfY]hg`9fZU`fi`b[Yb`]a
8gW`i`b[Y`gUa`a`Y`b`_cbbhYb`"8]Y`A`]gW`i`b[`Ui`g`U`hYb`

; YgW]W hYbž' bYi Yb' < YfUi gZcfXYfi b[Yb' i bX' Ya ch]cbU`Yb
A ca YbhYb'n]Y\ h'XYfnY]h'Ni gWUi Yf']b']\ fYb' 6Ubb"

9]b[Yk Ò\ bi b[']a ' 8gW i b[Y`

8]Y' 8mbUa]_]bbYf\ U`V`XYg' 7Ua dg'nY][h'g]W`U`g`Y]b
]bhYfYggUbhYg'Gd]Y[Y`V]`X'a YbgW`]WYf' 6Yn]Y\ i b[Yb" `K `À\ fYbX
Y]b][Y`HY]`bY\ a Yf' j Yfgi W`Ybž'a]h\]ZY' j cb`GhfY]hYfY]Yb']\ fY
Dcg]h]cb`ni `ZYgh][Ybž'gi W`Yb`UbXYfY`bUW`A Ò[`]W`_Y]hYbž'g]W
Ya ch]cbU`ni `j YfV]bXYb' i bX`ni `i bhYfghØhnYb" `9g`V`Y]Vh
UVni k UfhYbž'cV`X]Y`7Ua dYf']b`XYb`_ca a YbXYb`HU[Yb`YfbYb
k YfXYbž']\ fY`8]ZYfYbnYb`ni `ØVYfk]bXYbž'cXYf'cV`X]Y
?cbZfcbhUh]cbYb`k Y]hYf\]b']a `]c fXYf[fi bX`ghY\Yb`k YfXYb"

8]Y`9b hk]W_`i b[`XYf`F YU`]hm! HJ !: cfa UhY

8]Y`F YU`]hm! HJ !: cfa UhY ` \ UVYb`gY]h']\ fYa `5i Z_ca a Yb']b`XYb
ZfØ\Yb`&\$ \$Yf` ǻ\ fYb`Y]bY`Yf\YV`]WY`9b hk]W_`i b[`Xi fW`Ui ZYb"
FH@k Uf`Y]bYf`XYf`J cffY]hYf']b`8Yi hgW`UbX`a]h'XYf`9]bZØ`fi b[
j cb` : cfa UhYb`k]Y` 6][`6fch\Yf` i bX` `W`V]b`Y]b`GhUf' ` < c`h'a]W
\Yf`fUi g" `8]YgY` : cfa UhY ` \ UVYb`b]W`h'bi f`XUg` : YfbgY\Yb
fYj c`i h]cb]Yf hž'gcbXYfb`Ui W`XUg`GY\Yf`YVb]g`Yf\YV`]W
j Yf`ÀbXYfh`C V`Yg`i a `nk]gW`Yba YbgW`]WY`?cbZ]_hYž`Ya ch]cbU`Y
6Y]W`hYb`cXYf`XYb`i a [Ub[`a]h'?cbZ]_hYb`ja `HYUa ` [Y\ hž`X]Y
Ni gWUi Yf'g]bX`ja a Yf`k]YXYf`ZUgn]b]Yfhj cb`XYb`a YbgW`]WYb
8fUa Ybž`X]Y`g]W`j cf']\ fYf`5i [Yb`UVgd]Y`Yb"

8Yf`8gW i b[Y`nY][h'X]Yg']b`VYgcbXYfg`Y]bXfi W_gj c`Yf`K Y]gYž
]bXYa `Yf`XYb`HY]`bY\ a Yfb`b]W`h'bi f`_ØfdYf`]WYž'gcbXYfb`Ui W
dgmW]gWY` < YfUi gZcfXYfi b[Yb`Ui ZYf`Y[h`8]YgY` : cfa UhY` [fY]Zh
cZi[YgY`gW`UZh]WY`H\Ya Yb`k]Y`A UW`hž`8Ya i h'i bX`X]Y
6Yk `À`h][i b[`j cb`dYfgØb`]WYb`?f]gYb`Ui Zž`k Ug`g]Y`b]W`h'bi f
i bhYf\U`hgUa ž'gcbXYfb`Ui W`fY`Yj Ub`h'a UW`h"

9]b`6`]W_`Ui Z`X]Y`Ni gWUi YfnU\`Yb

8Yf`Ni gWUi Yfni gd fi W`ZØf' `W`V]b`Y]b`GhUf' ` < c`h'a]W` \]Yf

fUi g`]gh`bUW`k]Y`j cf`ghUf`_"@Ui h`GhUh]ghU`j YfZc`[hYb`]a` `YhnhYb
>U\ f`Xi fW`gW`b]h`]W` ØVYf`" `A`]`]cbYb`A` YbgW`Yb`YXY`9d]gcXY
XYg`8gW`i b[Y`WJa` dg`"8]YgY`NU\`Yb`j YfXYi`h`]W`Ybž`XUgg`X]Y
GYbXi`b[`bUW`k]Y`j cf`Y]b`ZYghYf`6YghUbXhY`]`XYf`XYi`hgW`Yb
: YfbgY`\`UbXgW`UZh`]gh`i bX`g]W`Y]bY`hfYi`Y`Ni`gW`Ui`YfgW`UZh
Yf\`U`hYb`h`" `h`gVYgcbXYfY`X]Y`ž`V]`Ai`a`gUi`g[UVYb`n]Y\`Yb`h`Ai`Z[
Y]b`h`Ø\`YfYg`h`hYfYggY`bUW`g]W`ž`k`Ug`g]W`Ui`W`]b`XYb
9]bgW`U`hei`chYb`b]YXYfgW`h`[`h`"

Ni`g`h`h`]W`VYf]W`hYhYb`A`YX]YbghUh]gh]_Yb`j`cb`Y]bYa`5bgh]Y[`XYf
GhfYUa`]b[`!Bi`hni`b[`Yb`Ui`Z`D`UhhZc`fa`Yb`k`]Y`F`H@ž`ž`k`Ug`X]Y
k`UW`gYbXY`6Y`]YVh\Y]hj`cb`C`b!8Ya`UbX!`h`U`hYb`nY][`h`h`b`Y]bYf
]a`a`Yf`X][`]hU`Yf`k`YfXYbXYb`K`Y`h`]gh`Yg`ZØf`:`YfbgY`\`gYbXYf
YbhgW`Y]XYbXž`g]W`Ub`X]Y`GY\`[`Yk`c`b`b`Y]hYb`XYf`Ni`gW`Ui`Yf
Ubni`dUggYb`"

8 Ug`gc`n]U`Y` ; YZØ[`Y`]b`F`YU`]hm!G\`c`k`g`

F`YU`]hm!G\`c`k`g`k`]Y`XUg`8gW`i`b[`Y`WJa`d`V]YhYb`b]W`h`bi`f
l`bhYf\`U`hi`b[`ž`gcbXYfb`Ui`W`Y]bY`]bhYfYggUbhY`DYfgdY`_hj`Y`Ui`Z
XUg`gc`n]U`Y`j`Yf\`U`hYb`j`cb`A`YbgW`Yb`]b`Yi`hfYa`Yb`G]hi`Uh]cbYb`"
DgmW`c`c`[`Yb`h`UVYb`ZYgh[`YghY`hž`XUgg`XUg`@YVYb`]b`Y]bYf
]gc`]YfhYb`l`a`[`YVi`b[`ž`_ca`V]b]Yfh`a`]h`h`[`]W`Ya`GhfYgg`i`bX
?`cbZ]_hYbž`ØVYffUgW`YbXY`j`Yf\`U`hYbga`i`ghYf`YfnYi`[`Yb`_Ubb`"
>Øf[`G`W`bY]XYfž`Y]b`9l`dYfhY`ZØf`A`YX]YbdgmW`c`c`[`]Yž`VYgW`fY]Vh
X]Yg`U`g`Y]bY`5fh`gc`n]U`Yb`A`]_fc`_cga`cgž`]b`XYa`X]Y
DfchU[`cb]ghYb`[`Ynk`i`b[`Yb`g]bXž`gck`c`\`]\fY`dYfgØb`]W`Yb
9][`YbgW`UZhYb`U`g`Ui`W`Y]\fY`nk`]gW`Yba`YbgW`]W`Yb`6Yn]Y\`i`b[`Yb
ni`_cbZfc`bh]YfYb`"Gc`YbhghY\`Yb`Ui`h\`Ybh]gW`Y`9a`ch]cbYb`i`bX
?`cbZ]_hYž`X]Y`ZØf`X]Y`Ni`gW`Ui`Yf`dUW`YbX`g]bX`"

8]Y`h`hYfU`_h]cb`XYf`HY]`bY\`a`Yf`i`bhYfY]bUbXYfž`k`]Y`XYf`GhfY]h
nk`]gW`Yb`9`YbU`A`]fUg`i`bX`<`Ub`_U`F`UW`_k`]hž`]gh`Y]b`6Y]gd]Y`ZØf`X]Y
XmbUa`]gW`Yb`nk`]gW`Yba`YbgW`]W`Yb`6Yn]Y\`i`b[`Ybž`X]Y`]a
8gW`i`b[`Y`WJa`d`YbhghY\`Yb`_ØbbYb`"Gc`W`Y
5i`gY]bUbXYfgYhni`b[`Yb`n]Y\`Yb`c`Zi`XUg`h`hYfYggY`XYf`Ni`gW`Ui`Yf
Ubž`XU`g]Y`Y]b`:`YbhghYf`]b`X]Y`?`ca`d`Yi`]h`h`XYf`a`YbgW`]W`Yb
h`hYfU`_h]cb`V]YhYb`"

8YhU]g

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