

/ `h/d/ [ h// `h/ghfcb [ / [ h/F ]dd`Y`i bhYf  
8 fi W\_. `8fc\h`k Y]hYfYf'?i fgfØW\_[ Ub [ `ZØf  
L F D`Ua `'\$&"'5df]`  
&\$&) 3/ `h/#ghfcb [ / [ h// `h/#d/ [ h/

F ]dd`Y!Dfc [ bcbgY`ZØf`A ]hkh cW ž`XYb`'\$&"'5df]`&\$&) .`8Yf`L F D!  
?i fg`]b`XYf`?cffY\_hi fd\UgY`8Yf`L F D!`?i fg`j`cb`F ]dd`Y  
VYZ]bXYh`g]W`bUW`k ]Y`j`cf`]b`Y]bYa`dUfU`Y`Yb  
5Vk`Åfhg\_UbU`"GY]h`XfY]`A`cbUhYb`Yf`YVh`F ]dd`Y`Y]bY  
?cffY\_hi`fVYk`Y [ i`b [ ž`i`bX`X]Y`:`FU [ Y`V`Y]Vh`K ]Y`h]YZ`\_ØbbhY  
XYf`DfY]g`bcW`ZU`Yb3`A`cbUh]W`Yf`5i`gV`]W\_.`6YUf]g\Y`A`578!  
5bnY]W`Yb`a`A`cbUhgW`Ufh`nY][`h`XUg`<]ghc [ fUa`a`XYg  
A`578`g`gY]h`XfY]`A`cbUhYb`VÅf]gW`Y`HYbXYbnYb`"K`Å\fybX  
X]Y`A`578!@]b]Yb`bUW`k ]Y`j`cf`Vi`" ]gW`ØVYf`fYi`nhg]bXž  
VYk`Y [ h`g]W`XYf`FG`=]a`bYi`hfU`Yb`6YfY]W`"Gc`h`Y`F ]dd`Y`X]Y  
?cffY\_hi`f`ZcfhgY`hnYbž`\_ØbbhY`XYf`DfY]g`VY]`fi`bX`%ž`() `I`G8  
Ui`Zg][`b]Z]\_Ub`hY`I`bhYfghØ`hni`b [ `]a`6YfY]W`XYf`;`c`XYb`F`Uh]c  
ghc»`Yb`"Gc`Ub [ Y`XYf`?i`fg`ØVYf`/`Ua`d`^Y`d/



F ]dd`Y!Dfc [ bcbgY`ZØf`A ]hkh cW ž`XYb`'\$&"

5df]`&\$&) . `8Yf`LFD!?! fg]b`XYf

?cffY\_hi fd\UgY

8Yf`LFD!?! fg] cb`F]dd`Y`VYZ]bXYh]g]W`bUW`k ]Y`j cf`]b`Y]bYa  
dUfU`Y`Yb`5Vk`Åfhg\_UbU`"GY]h`XfY]`A`cbUhYb`Yf`YVh`F]dd`Y`Y]bY  
?cffY\_hi`fVYk`Y[ i`b[ ži`bX`X]Y` :`fU[ Y`V`Y]Vh`K` ]Y`h]YZ`\_`ObbhY`XYf  
DfY]g`bcW`ZU`Yb3

A`cbUh`]W`Yf`5i`gV`]W\_ . `6YUf]g`Y`A`578!

5bnY]W`Yb

⇒ A`cbUh]g]W`Ufh`nY][`h`XUg`<]ghc[`fUa`a`XYg`A`578`g`gY]h`XfY]  
A`cbUhYb`V`Åf]g]W`Y`HYb`XYbnYb`"K`Å`fYb`X`X]Y`A`578!`@]b]Yb`bUW`  
k` ]Y`j`cf`Vi`"]g]W`ØVYf`fYi`nh]g]b`Xž`VYk`Y[`h]g]W`XYf`F`G`=]a  
bYi`hfU`Yb`6YfY]W`"Gc`h`Y`F]dd`Y`X]Y`?`cffY\_hi`f`Zc`fhgY`hnYbž`\_`ObbhY  
XYf`DfY]g`VY]`fi`b`X`%ž`(`)`I`G8`Ui`Z]g[`b]Z]\_`UbhY`i`bhYfgh`Ø`hni`b[`]a  
6YfY]W`XYf` ;`c`XYb`F`Uh]c`ghc`»`Yb`"Gc`Ub[`Y`XYf`?`i`fg`ØVYf`X]Y`gY`a  
B]j`YUi`V`Y]Vhž`V`Y]Vh`X]Y`5i`Zk`ÅfhgVYk`Y[ i`b[`a`]hY`Zf]gh][`Vi`"]g]W  
]bhU`\_`h`"



Ni`g`Å`hn`]W`Y`i`b`hYfgh`Ø`hni`b[`]`Ub`XYf` ;`c`XYb`  
F`Uh]c`

8]Y'; c`XYb`F Uh]c`VY]`Yhk U`%ž( ) `I G8 `V]YhYh`XYa `L F D!`?i fg`Y]bY  
 ni gÅm`n]WXY`I bhYfghØhni b[ "Ni XYa `]Y[ h`VY]`fi bX`%ž) , , `I G8 `XYf  
 ) \$!K cWXYb!9A 5žk Y`WXYf`YVYbZU`g`U`g`I bhYfghØhni b[ `Zi b[ ]Yfh"  
 8]Y`ϑX]\_UhcFYb`XYi hYb`\_i fnZf]gh][ `YXcW`Ui ZVÅf]gWXY`G][ bU`Y  
 \]b"8 Ug`<]ghc[ fUa a `XYg`A 578g`k Y]gh`Y]bYb`5Vk ÅfhghfYbX`Ui Žž  
 k Å\fybX`X]Y`A 578!@]b]Yb`VÅf]gW`ØVYf`fYi nh`g]bX"8Yf`F G=V`Y]Vh  
 ]a `bYi hfU`Yb`6YfY]Wžk Ug`XYb`VÅf]gWYb`HfYbX`i bhYfghØhnh"  
 Gc`h`Y`F ]dd`Y`X]Y`I bhYfghØhni b[ `VY]`%ž( ) `I G8 `VfYWXYbž`\_ØbbhY  
 XYf`?i fg`ni a `&\$!K cWXYb!9A 5`VY]`Yhk U`\$ž +) `I G8 `\_cff][ ]YfYb"



HU[ YgWÅ Ufh. `; c`XYb`7fcggcj Yf`V`Y]Vh  
 VYghY`Yb

æa `HU[ YgWÅ Ufh`nY][ h`g]WÅ `YVYbZU`g`Y]b`; c`XYb`7fcggcj Yfž`k Ug  
 XYb`HfYbX`\_i fn!`V]g`a ]hhY`Zf]gh][ `U`g`Vi ``]gWÅ `VYghÅh][ h"8 Ug  
 <]ghc[ fUa a `XYg`A 578g`j YfnY]WÅbYh`gY]h[ YghYfb`Vi ``]gWÅ Y  
 : cfhgWÅ f]hhYžk Å\fybX`X]Y`A 578!@]b]Yb`k Y]hYf`]b`VÅf]gWÅ  
 ØVYf`fYi nh`g]bX"8Yf`F G=b]a a h`Y]bY`bYi hfU`Y`Dcg]h]cb`Y]b`i bX  
 [ ]Vh`\_Y]bY`\_UfYb`G][ bU`Y" `Gc`h`Y`F ]dd`Y`X]Y`?cffY`\_hi f`Ub`U`hYbž  
 \_ØbbhY`Yf`Ua `&\$!HU[ Y!9A 5`VY]`Yhk U`%ž- ( ) `I G8 `Ui Z`g][ b]Z]\_UbhY  
 I bhYfghØhni b[ `ghc»Yb"CVYf`U`V`XYg`?i fgYg``]Y[ h`VY]`fi bX`&ž`\*  
 I G8 `XYf`) \$!HU[ Y!9A 5žk c`ghUf`\_Yf`K ]XYfghUbX`ni `Yfk UfhYb`]gh"



( <!7 \ Ufh. '8 YUh\ '7 fc gg 'g)[ bU`]g]Yfh  
\_i fnZf]gh][ Y '6U]ggY

æ '( !Ghi bXYb!7 \ Ufh'nY][ h'g]W\ 'Y]b '8 YUh\ '7 fc ggž'k Ug'XYb  
\_i fnZf]gh][ Yb 'HfYbX'VÀf]gW\ 'VYghÀh][ h"K À\ fYbX'X]Y 'A 578!@b]Yb  
Vi ``]gW\ ØVYf\_fYi nh'g]bXž'h]W\_h'XUg' < ]ghc[ fUa a 'XYg'A 578 g  
j Yfa Y\ fh'VÀf]gW\ " '8 Yf'F G=j Yf\À'h'g]W\ 'bYi hfU'i bX``]YZfh'\_Y]bY  
gdYn]Z]gW\ Yb 'G][ bU`Y"



F ]dd`Y '[ Y[ Yb '6]hWł]b. 'DchYbn]U`Z0f'; c`XYb

# 7fcggcj Yf

; Y[ Yb'6]hWc]b'k i fXY'XYf'LFD!?! fg'Ua 'K ]XYfghUbX'XYf'; c`XYb  
FUh[c'VY]fi bX '\$\$\$\$\$&- '6H7'VÀf]gW'UV[ Yk ]YgYb"5\_hi Y`  
VYk Y[ h'g]W'XYf'?i fg]b'F]W'hi b[ 'XYf'\$ž , &: ]VcbUW!]  
I bhYfghØhni b[ 'VY]'Yhk U'\$\$\$\$\$&' \* \* '6H7žk c'Y]bY'Vi ``]gW'Y  
FYU\_]cb'a Ò[ 'W'gh"5bgcbghYb'k UfhYh'VY]'Yhk U'\$\$\$\$\$%+%)  
6H7'Y]bY'g][ b]Z\_UbhY': ]VcbUW!]  
I bhYfghØhni b[ "'8UfØVYf'\]bUi g  
ghY\Yb'X]Y'9A 5g\_i fn'j cf'Y]bYa 'a Ò[ 'W'Yb'; c`XYb'7fcggcj Yf']a  
K cW'YbW'Ufhž'k Ug'Ui ZY]bYb'a ]hhY'Zf]gh][ 'Vi ``]gW'Yb'HfYbX  
\]bXYi hYb'k ØfXY"'8]Y'A 578!@]b]Yb'g]bX'VÀf]gW'ØVYf\_fYi nhi bX  
XUg'<]ghc[ fUa a 'h]W\_h'VÀf]gW'h]YZYfž'k À\fybX'XYf'FG=bYi hfU'  
V'Y]Vh"



Hfchn'XYf'? cffY\_hi fd\UgY'nY][ h'F]dd`Y'[ Y[ Yb'6]hWc]b'k Y]hYf\]b  
Vi ``]gW'Y'HfYbXYbnYb"'8]Y'bÀW'ghY': ]VcbUW!]  
I bhYfghØhni b[  
\_ØbbhY'Y]bY'ghUf\_Y'Vi ``]gW'Y'5VdfU`i b[ 'Yfa Ò[ 'W'Ybž'i a 'XYb  
5i Zk ÀfhghfYbX'Zc'fni gYhmYb"

8YhU]`g

6Ygi W\ Yb 'G]Y 'i bg 'Ui Z. '\_fmdhc!bYk g"Uh