



ARTS3452

DfcZYgg]cbU`7 \]bYgY`5

GYa YghYf`C.bY`#`&\$%

GWXcc`cZ<i a Ub]hYg`UbX`@Ub[i U[Yg`#`! BGK `5ftg`UbX`GcWU`GwYbWg

7 ci fgY`Cj Yfj]Yk

`GHUZZ`7 cbhUW`i8YHU]`g`

`7cbj Ybcfg`

B Ua Y	9a U]`	5j U]UV]`]m	@cWU]cb	D\cbY
M]N\Yb[m]"n\Yb[' 4 i bgk "YXi "Ui	Hi YgXUmg %' \$!&.' \$da `cf`Vm Uddc]b]a Ybh	F &)' `A cfj Yb 6fck b`6i]X]b[) % +\$

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D\cbY. `ž*%&`-` ,) `)%*, %

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9a U]: [\U`4 i bgk "YXi "Ui](#)

5 hYbXUbW`F Yei]fYa Ybhg

5`gh XYbh]g`YI dYW`X`hc`U`hYbX`U`WUgg`W`b]hUW`i`ci fg`Zcf`U`Z]W`!`hc`Z]W`fi &` :cf`V`YbXYX`W`ci fgY`UbX
W`ca d`Y`h`U`U`W`U]`j]h]Yg`Zcf`U`V`YbXYX`cf`Z` ``mcb`]bY`W`ci fgY"

5`gh XYbhk` \c`Uff]j Yg`a cfY`h`Ub`%)` `a]bi`h`g`U`h` `a UmVY`dYbU`]gYX`Zcf`bcb!`U`hYbXUbW` ``Zgi`W`U`dYbU`m
]g`]a dcgYXž`h`Y`gh XYbhia` i ghVY`]bZcfa YX`j YfVU`m`Uhi`h`Y`YbX`cZ]WUgg`UbX`UXj`]gYX`]b`k`f]h]b[`k`]h`]b`&(`
\ci fg"

ZU`gh XYbhYI dYf]YbW`g`]`bYggž`a]gUXj Ybh fy`cf`ch`Yf`cW`W`ffYbW`h`Uha U`Yg`UVgYbW`Zca`U
WUgg#UW]j]mi bUj c]XUVYžcfYI dYW`g`hc`VY`UVgYb]hZca`U`Zcf`h`W`ca`]b[`WUgg#UW]j]mž`h`Ymg\ci`X`gYY`
dYfa]gg]cb Zca`h`Y`7 ci fgY`5i`h`cf]mž`UbX`k` \YfY`Udd`]WUV`Yž`h`Y]f`fYei Yghg\ci`X`VY`UW`W`ca`dUb]YX`VmUb
cf][]bU`cf`W`f]j]YX`W`dmcZU`a YX]W`W`f]j]W`h`cf`ch`Yf`Zca`cZUddcfdf]U`h`Yj]XybW"

5 7 ci fgY 5i hcf]hma UmYI W gY U'ghi XYbhZca WUggYg'cf UWj] hYg Zcf'i d'hc'cbY'a cbh" <ck Yj YfZ hYm
a UmUgg][b UXX]hcbU'UbX#cf U'hYfbUh] Y'Ug_g'hc Ybgi fY Wca d]UbVW" 5 7 ci fgY 5i hcf]hmWcbg]XYf]b['hY
[fUhb]b['cZUVgYbVW'a i ghVY'gUhgZ]YX'U'ghi XYbhk]'gh'VY'UV'Y'hc'a Y'h'hY'Wci fgY'g'YUfb]b['ci hWca Yg
UbX#cf] c'i a Y'cZ'YUfb]b[" 5'ghi XYbhgYY_]b['Uddfcj U'hc'VY'UVgYbhZca cfY' h'Ub'cbY'a cbh'a i ghUdd'm
]b'k f]h]b['hc'hY'8YUb'UbX'dfcj]XY'U'cf]]bU'cf'Wfh]Z]YX'gi ddcfh]b['XcW'a YbHUhcb"

: cf'a cfY]bZca Uhcb'UVci h'hY'U'hYbXUbW' d'fch'Wc'g]b'hY': UW 'hmcZ5fng'UbX'GcW]U'
GWYbWg: [\hfdg.#k k k "Ufng"i bkg "YXi "Ui #W ffYbhghi XYbfg#UWUXYa \]W\]bZca Uhcb#dfch'Wc'g! \[i \]XY\]bYg#](#)

5 WUXYa]W]bZca Uhcb'

: cf'YggYbh]U'ghi XYbh]bZca Uhcb'fY'Uh]b['hc' fYei Ygfh'Zcf'YI h'bg]cb/fYj]Yk'cZa Uf_g/cVW dUhcbU'YU'h
UbX'gUZ]m'YI Ua]bUhcb'dfcW'Xi fYg/gdYW]U'Wcbg]XYfUh]cb']b'hY'Yj Ybhcz]'bYgg'cf'a]gUXj Ybh fY/
ghi XYbhYei]hmUbX'X]gUV']m'UbX'ch'Yf'YggYbh]U'UWUXYa]W]bZca Uhcbz
gYY: [\hfdg.#k k k "Ufng"i bkg "YXi "Ui #W ffYbhghi XYbfg#UWUXYa \]W\]bZca Uhcb#dfch'Wc'g! \[i \]XY\]bYg#](#)

7 ci fgY'8YHJ]`g

7 fYX]hDc]bHg '*`

Gi a a UfmicZ`h`Y'7 ci fgY

Gi V`Y`W`h`5`f`Y`U`.'`7`\\`b`Y`g`Y`'G`h` X`]`Y`g`

H`\\`g`'W`c`i` f`g`Y`'d`f`c`j`]`X`Y`g`'d`f`c`Z`g`g`]`c`b`U`'`Y`j` Y`'`]`b`g`f`i` W`]`c`b`'`b`'`7`\\`b`Y`g`Y`'`U`b`[` i` U`[` Y`'`U`b`X`'`W`'`h`'`f`Y`'`g`h`'`X`]`Y`g`'`'`6`m`i`g`h`'`X`m`]`b`[` U`'k`]`X`Y`'`f`U`b`[` Y`'c`Z`h`Y`l` h`g`'h`U`h`g`\\`c`k` W`U`g`Y`'`h`Y`'i` g`Y`'`U`b`X`'`Y`j` c`i` h`c`b`'c`Z`j` Y`f`b`U`W`'`U`f`'`7`\\`b`Y`g`Y`z`m`c`i`'`k`]`'`W`c`b`h`]`b`i` Y`'`h`c`]`a` d`f`c`j` Y`'`m`c`i`'`f`'`]`b`h`Y`[` f`U`h`X`'`'`U`b`[` i` U`[` Y`'`g`_]`'`g`z`Y`g`d`Y`W`U`'`m`d`f`c`Z`W`Y`b`W`h`]`b`'`f`Y`U`X`]`b`[` '`U`b`X`'k` f`]`h`b`[` z`U`g`'k` Y`'`'`U`g`'`X`Y`j` Y`'`c`d` U`'g`Y`b`g`Y`'c`Z`h`Y`'\\`]`g`h`c`f`m`c`Z`7`\\`b`Y`g`Y`'`'`U`b`[` i` U`[` Y`'`'`H`\\`Y`'`a` Y`X`]`i` a`'`c`Z`]`b`g`f`i` W`]`c`b`'`]`g`'`7`\\`b`Y`g`Y`'`'`H`\\`Y`'`W`c`i` f`g`Y`'`W`U`h`f`g`'`Z`c`f` g`h`'`X`Y`b`h`g`'`Y`b`h`f`]`b`[` '`h`Y`'`7`\\`b`Y`g`Y`'`d`f`c`[` f`U`a`'`'`U`h`h`Y`'`d`f`c`Z`g`g`]`c`b`U`'`'`Y`j` Y`'`'`U`b`X`'`U`g`c`'`g`Y`f`j` Y`g`'`U`g`'`U`b`'`c`d`h`c`b`U`'`W`c`i` f`g`Y`'`Z`c`f`'`h`c`g`Y`'`k`'`\\`c`'`\\`U`j` Y`'`W`c`a` d`'`Y`h`X`'`5`X`j` U`b`W`X`'`7`\\`b`Y`g`Y`'`6`'`f`5`F`H`G`'`(`)``%`&`"

5 h`h`Y`'`W`c`b`W`i` g`]`c`b`'c`Z`h`'`g`'`W`c`i` f`g`Y`'`h`Y`'`g`h`'`X`Y`b`h`k`]`'`'`V`Y`'`U`V`'`Y`'`h`c`

%`'`W`c`a` a` i` b`]`W`U`h`'k`]`h`'`U`'`\\`[` \\`'`Y`j` Y`'`c`Z`d`f`c`Z`W`Y`b`W`h`]`b`'`7`\\`b`Y`g`Y`'`'`U`b`[` i` U`[` Y`'`&`'`X`]`g`W`'`g`g`'`W`c`a` d`'`Y`l`'`g`i` V`'`Y`W`h`a` U`h`Y`f`g`'`]`b`'`V`c`h`'`g`d`c`_`Y`b`'`U`b`X`'k` f`]`h`Y`b`'`7`\\`b`Y`g`Y`'`'`'`'`U`b`U`'`m`g`Y`'`g`c`d`\\`]`g`h`]`W`U`h`Y`X`'`h`Y`l` h`g`'`U`b`X`'`]`X`Y`b`h`Z`m`j` U`f`m`]`b`[` '`'`U`b`[` i` U`[` Y`'`g`h`m`Y`g`'`U`b`X`'`f`Y`[`]`g`h`Y`f`g`z`'`U`b`X`'`U`d`d`'`m`i`h`Y`a`'`]`b` Y`Z`Y`W`]`j` Y`'`W`c`a` a` i` b`]`W`U`h`c`b`
(`'` i` g`Y`'`U`b`U`'`m`h`]`W`]`'`U`b`X`'`W`]`h`]`W`]`'`h`]`b`_]`b`[` 'g`_]`'`g`
)`'` Y`l` d`'`U`]`b`'`h`Y`'`Y`j` c`i` h`c`b`'c`Z`7`\\`b`Y`g`Y`'`'`U`b`[` i` U`[` Y`'`

HYUWX]b['GhfUH[]Yg'

h`X`Y`g`[`]`b`[` '`h`]`g`'`W`c`i` f`g`Y`z`k` Y`'`\\`U`j` Y`'`h`U`_`Y`b`'`]`b`h`c`'`U`W`W`c`i` b`h`h`Y`'`f`]`W`X`'`\\`]`g`h`c`f`m`U`b`X`'`W`'`h`'`f`U`z`'`]`b`[` i`]`g`h`]`W`X`]`j` Y`f`g`]`m`i`c`Z` h`Y`'`7`\\`b`Y`g`Y`'`'`U`b`[` i` U`[` Y`z`'`U`g`'k` Y`'`'`U`g`'`h`Y`'`a` i`'`h`d`'`]`W`]`m`i`c`Z`W`c`a` a` i` b`]`W`U`h`c`b`'`a` c`X`Y`g`'`V`f`c`i` [` \\`h`i`U`V`c`i` h`V`m`i`[` 'c`V`U`'`n`U`h`]`c`b` U`b`X`'`h`'`W`X`b`c`'c`[`]`W`]`'`U`X`j` U`b`W`'g`'`K` Y`'`V`Y`'`]`Y`j` Y`'`h`Y`g`Y`'`Z`U`W`c`f`g`'`\\`U`j` Y`'`U`[` f`Y`U`h`]`a` d`U`W`h`c`b`'`d`f`U`W`]`W`Y`g`'c`Z`'`]`h`Y`f`U`W`h`'`'`h`i`g` c`i` f`'`\\`c`d`Y`'`h`U`h`V`m`i`g`h`'`X`m`]`b`[` 'U`'k`]`X`Y`'`f`U`b`[` Y`'c`Z`h`Y`l` h`g`'`U`b`X`'`d`f`U`W`]`W`]`b`[` 'g`d`Y`W`U`'`m`i`X`Y`g`[`]`b`Y`X`'`'`U`b`[` i` U`[` Y`'`U`b`X`'`f`Y`g`Y`U`f`W`X` Y`l` Y`f`W`]`g`Y`g`z`m`c`i`'`k`]`'`'`U`W`X`]`Y`j` Y`'`a` i`'`h`i`'`]`h`Y`f`U`W`h`i`U`g`'k` Y`'`'`U`g`'`W`c`a` a` i` b`]`W`U`h`j` Y`'`W`c`a` d`'`Y`h`b`W`'`'`M`c`i`'k`]`'`'`X`Y`j` Y`'`c`d`'`U`b` i` b`X`Y`f`g`h`U`b`X`]`b`[` 'c`Z`7`\\`b`Y`g`Y`'`W`'`h`'`f`Y`z`'g`c`W`]`h`m`i`U`b`X`'k` c`f`X`j`]`Y`k` g`z`]`b`'`d`U`f`h`]`W`'`U`f`'`h`Y`'`\\`]`g`h`c`f`m`c`Z`7`\\`b`Y`g`Y`'`'`U`b`[` i` U`[` Y`'`

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5ggYgga YbhHUg_g	K Y][\h	8i Y'8UHŸ	Gh XYbh@YUfb]b[Ci hWta Yg'5ggYggYX
6`c[#HfUbg`Uh]cb`	&\$!	: f]XUmž`K YY_`&ž(ž* ž ž%\$	%ž&ž(
; fci d`F YgYUfW`Dfc`YVh	' \$!	!WUgg`dFyGybH]cb`cb Hi YgXUmž`k YY_`%&/K f]HŸb fYgYUfW`dUdYf`Xi Y`cb : f]XUmž`k YY_`%	%ž&ž ž(ž)
C b`]bY`E i]n`	&\$!	: f]XUmž`K YY_`' ž) ž+ž- ž%%	%ž&ž
!WUgg`HŸghg`	' \$!	A]X]HŸfa`HYghCb K YXbYgXUmž`K YY_`+/:]bU` HYghcb`K YXbYgXUmž`k YY_` %	%ž&ž

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GHŸfhXUHŸ.:

8YHU]`g. `6]!k YY_`m`Gh XYbhg`U`HŸfbUHŸ`VYhk YYb`h`YgY`hk c`UggYgga YbhHUg_g. %`k f]HŸ`U`V`c[`fWU`" "\$\$ 7 \]bYgY`W`UfUW`Yfg`E`Wta a Ybh]b[`cb`h`Y`]ggi Yg`X]gW`ggYX`]b`YUW`c`Z`h`Y`h`I`h`ž`cf`U`X`X`f`Y`gg]b[`UbmiUgdYVh c`Z`h`Y`h`I`h`ž`Z`ca`"Ub[i U[Y`ghmY`hc`f`Y`hc`f]W`cf`a`c`X`Y`g`c`Z`k`f]H]b[/&"Wta d`Y`H`h`Y`H`f`U`b`g`U`h]`c`b`Y`I`Y`f`W]`g`Y`g`d`Y`W]`Z`Y`X`U`h`h`Y`Y`b`X`c`Z`Y`U`W`h`I`h`I`:"YYXVUW_`j]U`]bX]j]Xi U`"Wta a Ybhg`UbX`]b!WUgg`X]gW`gg]cb"

5ggYgga Ybh&.`; fci d`F YgYUfW`Dfc`YVh

GHŸfhXUHŸ.:

8YHU]`g. !WUgg`dFyGybH]cb`(`a]bi hŸg`dYf`dYfgcb`%) i /fYgYUfW`dUdYf`, \$\$!%&\$`W`U`f`U`W`Y`fg`d`Y`f`d`Y`fg`cb`%) i "Gh XYbhg`Z`ca`]bhc[`fci dg`VUgYX`cb`gi [[YghYX`h`cd]Wg`h`U`h`U`f`Y`Y`I`h`bg]cbg`c`Z`h`Y`h`I`hg`"H`Y`m`f`Y`g`Y`U`f`W`U`b`X`X]gW`gg`h`Y`h`cd]Wg`h`c[Y`h`Y`f`ž`Vi`h`Y`U`W`d`f`Y`g`Y`bhg`U`b`X`k`f]HŸg`cb`cbY`d`U`f`hc`Z`h`Y`f`f`Y`g`Y`U`f`W`" H`Y`m`U`f`Y`a`U`f`_`Y`X`]bX]j]Xi U`m`:"YYXVUW_`j]U`]bX]j]Xi U`"Wta a Ybhg`"H`Y`]g`h`Y`Z]bU`UggYgga YbhZ`c`f`U`H`Y`b`X`U`b`W`d`i`f`d`c`g`Y`g`"

5ggYgga Ybh.`. C b`]bY`E i]n`

GHŸfhXUHŸ.:

8YHU]`g. `6]!k YY_`m`Ub[i U[Y`Y`I`Y`f`W]`g`Y`g`Z`c`ck]b[`h`Y`Wta d`Y`h]cb`c`Z`Y`U`W`"Y`gg`cb`hc`U`gg`Y`gg`a`U`gh`Y`f`m`ic`Z`j`c`W]Vi`U`f`mž[fUa`a`U`f`ž`g`Y`bh`Y`b`W`d`U`H`Y`fb`ž`Wta d`f`Y`b`g]cb`UbX`c`h`Y`f`"Ub[i U[Y`f`Y[]g`HŸfg`"A`U`f`_`Y`X`cb`]bY`"

5ggYgga Ybh(`. !WUgg`HŸghg`

GHŸfhXUHŸ.:

8YHJ]g. Gh XYbty Wca dYH'rk c'hrgh fWJ"%) \ci fE]bWi X]b['g\cfn UbX`cb[Yf!Ubgk Yf'ei Yghcbg"A]X!

Gi Va]gg]cb'cZ5ggYgga YbhHUg_g

Gh XYbng'UFY'YI dYWX'hc'di h'AY'f'buA Yg'UbX'ghi XYbhibi a VYfg'cb'Yj YfmdU[Y'cZ'AY]f'Ugg][ba Ybng"

Hi fb]hb'Gi Va]gg]cb

z'mci 'YbWci bhYf'U'dfcV'Ya 'k \Yb'U'HYa dh]b['hc'gi Va]h'mci f'Ugg][ba Ybh'fci [\ 'Hi fb]hb'z'd'YUgY
HY'd\cbY'9I HYfbU'Gi ddcf'hc'b'-' ,) ' ' ' %cf'Ya U]'h'Ya 'cb'[YI HYfbU'HY'f'gi ddcf'h4 i bgk "YXI "Ui "](#)"Gi ddcf'h
\ci fg'UFY' , \$\$Ua '-%\$. \$da 'cb'k YY_XUmg'UbX'-' . \$Ua '-) . \$da 'cb'k YY_YbXg'f'l *) 'XUmg'U'mYUf'z'z'mci
UFY'i bUV'Y'hc'gi Va]h'mci f'Ugg][ba Ybh'Xi Y'hc'U'ZU'i 'hk]h'Hi fb]hb'mci 'a Um'Udd'm'Zcf'Ub'YI HYbg]cb'z'Vi h'mci
a i gh'fY'U]b'mci f'h]W'Yhbi a VYf'Z'ca '9I HYfbU'Gi ddcf'h'f'U'cb['k]h'Ub'mc'h'Y'f'f'Y'Yj Ubh'Xc'W a Yb'ng'k'hc
]b'Wi XY'Ug'Yj]XYb'W'hc'gi ddcf'h'mci f'YI HYbg]cb'Udd'j'W'h]cb" z'mci 'Ya U]'9I HYfbU'Gi ddcf'h'mci 'k]'
Ui 'hca Uh]W'U'm'f'Y'W'j] Y'U'h]W'Yhbi a VYf'z'Vi h]Z'mci 'HY'd\cbY'mci 'k]'b'Y'X'hc'gd'Y'W'Z'W'U'm'Ug'_Zcf'cbY"
Hi fb]hb'U'gc'd'f'c]]XY'gi dXUH'g'cb'h'Y]f'g'm'gh'Ya 'gh'U'h'g'cb'Hk]h'f'"

; YbYfU'm'z'UggYgga YbhHUg_g'a i gh'VY'gi Va]h'Y'X'Y'Y'W'f'cb]W'U'mj]U'Y]h'Y'f'Hi fb]hb'cf'U'A cc'X'Y
Ugg][ba Yb'h' 'b]bg'h'Ub'W'g'k \Y'f'Y'h']g']g' b'ch'd'c'g'g]V'Y'z'hk]'VY'g'f'U'Y'X'cb'mci f'Wci fg'Y'g'A cc'X'Y'g]h'Y'k]h'
U'h'f'U'h]j'Y'gi Va]gg]cb'XY'U]g"

@UH'5ggYgga YbhDYbU'h]Yg

5b'UggYggYX'f'Ug_']g'XY'Ya YX'UH']Z]h]g'gi Va]h'Y'X'U'Z'Y'f'h'Y'gd'Y'W'Z'Y'X'h'a Y'Ub'X'X'U'Y'U'g'g'Y'hci h]b'h'Y
Wci fgY '@Y'U'fb]b['A'Ub'U[Ya Ybh'G'm'gh'Ya 'f'@A G'L"

H'Y'UH'd'Y'b'U'm]g'h'Y'c'g'g'cZ) i 'cZ'h'Y'hc'h'U'd'c'g'g]V'Y'a Uf_g'Zcf'h'Y'f'Ug'_Zcf'Y'U'W'X'U'm'c'f'd'U'f'h'Y'f'Y'c'Z'h'Y
k'cf_']g'UH' '@UH'b'Y'gg'k]']b'Wi XY'k'YY_Yb'X'g'Ub'X'di V']W'X'c']X'Umg'"H']g'Xc'Y'g'b'ch'Udd'm'hc'U'f'Ug_'h'U'h]g
UggYggYX'Vi hbc'a Uf_']g'Uk'Uf'XYX"

K'cf_'gi Va]h'Y'X'Zci f'h'Y'b'f'f'X'Umg'U'Z'Y'f'h'Y'Xi Y'X'U'Y'k]'VY'a Uf_Y'X'Ub'X'Z'Y'X'V'U'W'd'f'c]]XYX'Vi hbc'a Uf_
k]'VY'f'Y'W'f'X'Y'X'z'h'Y'k'cf_'k'ci 'X'\Uj'Y'f'Y'W'j] YX'U'd'Ugg'a Uf_'Vi h'Z'f'h'Y'UH'b'Y'gg'Ub'X'h'Y'k'cf_']g'U
Wca di 'g'c'f'm'Wci fgY'Wca d'c'b'Y'b'h'z'U'gh'XY'b'hk]'VY'XY'Ya YX'hc'\Uj'Y'a Y'h'h'U'h'f'Yei]f'Ya Yb'h'H']g'Xc'Y'g'b'ch
Udd'm'hc'U'f'Ug_'h'U'h]g'UggYggYX'Vi hbc'a Uf_']g'Uk'Uf'XYX"

K'cf_'gi Va]h'Y'X'k'Y'b'h'c'b'Y'f'f'X'Umg'U'Z'Y'f'h'Y'Xi Y'X'U'Y'k]'b'ch'VY'U'W'W'd'h'X'Z'cf'a Uf_]b['cf'Z'Y'X'V'U'W'
Ub'X'k]'f'Y'W'j] Y'bc'a Uf_'cf['f'U'X'Y'"z'h'Y'UggYgga YbhHUg_g'U'Wca di 'g'c'f'm'Wca d'c'b'Y'b'h'c'Z'h'Y'Wci fgY'U
gh'XY'b'hk]'Ui 'hca Uh]W'U'm'ZU]'h'Y'Wci fgY"

GdYW]U'7cbg]XYfU]cb'5dd']W'h]cbg

Mci 'Wb'Udd'm'Zcf'gd'Y'W'U'W'cbg]XY'f'U]cb'k \Yb']'b'Y'gg'cf'c'h'Y'f'W'f'W a gh'Ub'W'g']b'h'f'Z'Y'f'k]h'mci f'
UggYgga Ybh'd'Y'f'Z'ca'Ub'W'"

G]W_b'Y'gg'za]g'UXj'Ybhi f'Y'cf'c'h'Y'f'W'f'W a gh'Ub'W'g'VY'nc'b'X'mci f'W'c'b'f'c''a Um

f'D'f'Yj'Yb'h'mci 'Z'ca 'Wca d'Y'h]b['U'Wci fgY'f'Yei]f'Ya Yb'h'z'

f'?Y'Y'd'mci 'Z'ca 'U'h'Y'b'X]b['Ub'UggYggUV'Y'U'W'h]j]m'z'

f'G'h'd'mci 'gi Va]h]b['UggYggUV'Y'k'cf_'Zcf'U'Wci fgY'z'

f`G][b]Z]W]b]h]m]U]Z]Y]W]h]m]c]i] f]d]Y]f]Z]c]f]a] U]b]W]W]]b]U]g]g]Y]g]g]U]V]`Y]`k] c]f]_]Z]V]Y]`]h]U]`Z]c]f]a] U]`Y]b]X]!]c]Z]g]Y]a] Y]g]h]f]`Y]I] U]a]]b]U]h]c]b]Z]U] W]U]g]g]`h]Y]g]h]Z]U]`U]V]c]f]U]h]c]f]m]h]Y]g]h]Z]U]`g]Y]a]]b]U]f]d]f]Y]g]Y]b]h]U]h]c]b]`c]f]U]b]m]c]h]Y]f]Z]c]f]a] `c]Z]U]g]g]Y]g]g]a] Y]b]h]

: c]f]Z] f]h]Y]f]X]Y]h]U]`g]`]b]`f]Y]`U]h]c]b]`h]c]`G]d]Y]W]U]`7]c]b]g]X]Y]f]U]h]c]b]`]b]W]i] X]b] [`]K] \]Y]b]`h]c]`5]d]d]m]Z]`<]c]k] `h]c]`5]d]d]m]`U]b]X] `]G]i] d]d]c]f]h]b] [`]8]c]W] a] Y]b]h]U]h]c]b]`d]`Y]U]g]Y]`f]Y]Z]f]`h]c]`h]Y]`G]d]Y]W]U]`7]c]b]g]X]Y]f]U]h]c]b]`k] Y]V]g]h]Y]`.

[\\]h\]c\]g\]`#\]g\]h\] X\]Y\]b\]h\]i\] b\]g\]k\] "Y\]X\]i\] "U\]i\] #\]g\]d\]Y\]W\]U\]`!\]W\]c\]b\]g\]X\]Y\]f\]U\]h\]c\]b\]](#)

5 WUXYa]W<c bYghmUbX 'D`U[]Uf]ga

D`U[]Uf]ga]g`i g]b['hY`k cfXg`cf]XYUg`cZchYfg`UbX`dfYgYbh]b['hYa`Ug`mci f`ck b" #WUb`hU`Y`a Ubm
Zcfa gZ`Zca`XY`]VYfUHy`WXYU]b['hc`UWV]XYbU`mW`dm]b[`Zca`U`gci fW`k]hCi hUW_bck`YX[Ya`Ybh`

I BGK`[fci dg`d`U[]Uf]ga`]bhc`hY`Zc`ck]b[`WUHy`[cf]Yg.

7cdm]b[.`i g]b['hY`gUa`Y`cf`j Yfmg]a]Uf`k cfXg`hc`hY`cf][]bU`hY`hcf`]XYU`k]hCi hUW_bck`YX[]b['hY`
gci fW`cf`i g]b[`ei chU]cb`a Uf`g`H`]g`U`gc`Udd`]Yg`hc`]a U[YgZ`UfhUbX`XYg][`b`dfc`YWgZ`Ug`k`Y`Ug`
dfYgYbhU]cbg`k`YfY`gca`YcbY`dfYgYbh]b[`Ubc`hY`f`g`]XYUg`cf`k`cfXg`k`]hCi hWYX]h`

#Uddfcdf]UHy`dUfUd`fUg]b[.`W`Ub[]b[`U`Zy`k`cfXg`UbX`d`fUgYg`k`Y`a`cghm`fYU]b]b['hY`cf][]bU`
g]h`f`i`W`f`Y`UbX`]bZcfa`U]cb`k`]hCi hUW_bck`YX[Ya`Ybh`H`]g`U`gc`Udd`]Yg`]b`dfYgYbhU]cbg`k`YfY`gca`YcbY`
dUfUd`fUgYg`Ubc`hY`f`g`]XYUg`cf`k`cfXg`k`]hCi hWYX]h`#U`gc`Udd`]Yg`hc`d`]YW]b[`hc`[Y`hY`f`ei`chYg`UbX`
dUfUd`fUgYg`]bhc`U`bYk`k`c`Y`Z`k`]hCi hfY`ZYfYbW]b[`UbX`U`gh`XYbh`g`ck`b`UbU`mg]g`hc`Vf]b['hY`a`U`hY`f]U`
hc`[Y`hY`f`

7c`i`g]cb.`k`cf_]b[`k`]h`chYfg`Vi`hdUgg]b[`cZ`hY`k`cf_]Ug`U`dYfgcb`g`]bX]j`Xi`U`k`cf_]7c`i`g]cb`U`gc`
]bW`i`XYg`dfcj`X]b[`mci`f`k`cf_]hc`Ubc`hY`f`gh`XYbhVY`Zc`fY`hY`Xi`Y`XU`hY`Zc`f`Zc`f`hY`di`fdcgY`cZ`hY`a`
d`U[]Uf]g]b[`Uh`Ubmi]a`Y`Z`dUm]b[`Ubc`hY`f`dYfgcb`hc`dYf`Zc`fa`Ub`UW`XYa`]W`hUg`_`Z`ghY`U`]b[`cf`U`W`ei`]f]b[
Ubc`hY`f`dYfgcb`g`UW`XYa`]W`k`cf_]UbX`W`dm]b[`]Z`c`Z`Yf]b[`hc`W`ca`d`Y`hY`Ubc`hY`f`dYfgcb`g`k`cf_]cf`g`Y`Y_]b[
dUma`Ybh`Zc`f`W`ca`d`Y`h]b[`UW`XYa`]W`k`cf_]`

#Uddfcdf]UHy`W`hU]cb.`7`h]b[`gci`fW`g`k`W`U`j`Y`bchV`Y`Yb`fY`U`X`Z`k`]hCi hUW_bck`YX[]b['hY`gY`W`b`X`U`f`m`
gci`fW`Z`ca`k`W`_`bck`YX[Y`cZ`hY`a`U`g`V`Y`Y`b`c`V`hU]bYX`

8i`d`]W`h]cb`f`f`gY`Z`d`U[]Uf]ga`E`gi`Va`]h]b[`mci`f`ck`b`k`cf_]b`k`c`Y`cf`]b`d`U`f`Z`k`Y`fY`]h`U`g`d`fYj`ci`g`m`
V`Y`Y`b`d`fY`d`U`fY`X`c`f`gi`Va`]hY`X`Zc`f`Ubc`hY`f`UggY`gga`Ybhcf`W`ei`fgY`U`hI`BGK`cf`Ubc`hY`f`i`b]j`Yfg]m`

7c`f`fY`W`h`fY`Z`fY`bW]b[`d`f`U`W`h]W`g.

- VYhYf'a UbU[Y'mci f'hja Y

7 ci fgY'GWXYXi `Y

[J\]Yk`WUgg`hja`YhUV`Y](#)

H]a`YhUV`Y`

8UH	HmdY	7cbhYbh
K YY_%`&`*: YVfi Ufm!`(` A UfW	@YWh fy	hfcXi W]cb" F YUX]b[g.
K YY_&.`) `A UfW !`%% A UfW	@YWh fy Hi hcf]U`	"7i`h`fU`#Glm]gh]Wg`6UW_[fci bX/ zF YUX]b[g` "
K YY_`!`.%&`A UfW !`% A UfW	@YWh fy Hi hcf]U`	7i`h`fU`6UW_[fci bX"/ z` /F YUX]b[g.
K YY_(`.%`A UfW !`&` A UfW	@YWh fy Hi hcf]U`	"7i`h`fU`#`]ghcf]WU`6UW_[fci bX/ /fYUX]b[g.
K YY_)`.&`A UfW !`% 5df)`	@YWh fy Hi hcf]U`	7i`h`fU`6UW_[fci bX/`V`c[`Wca`a`Ybh` F YUX]b[g.`/` /`
6fYU_`&`5df)`!`,`5df)`		
K YY_`*`.`-`5df)`!`%`5df)`	@YWh fy Hi hcf]U`	"7i`h`fU`/`GcW]U` 6UW_[fci bX/ /F YUX]b[g.` "
K YY_`+`.`%`5df)`!`&& 5df)`	@YWh fy Hi hcf]U`	7i`h`fU`#`]ghcf]WU`6UW_[fci bX/ F YUX]b[g.`z` /HYgh%
K YY_`,`&`5df)`!`&- 5df)`	@YWh fy Hi hcf]U`	"7i`h`fU`/`GcW]U` 6UW_[fci bX/F YUX]b[g.` 5bnUW8Umz`bc`h`hcf]U`"Gh`XYbtg`hc`k`f]H`h`Y`V`c[`Uh` `ca`Y"
K YY_`-`.`\$`5df)`!`*`A Um	@YWh fy Hi hcf]U`	"F YUX]b[g.`z` HYgh%: YYXVUW_
K YY_`%\$`.`+`A Um!`% A Um	@YWh fy Hi hcf]U`	"7i`h`fU`#`]ghcf]WU` 6UW_[fci bX" F YUX]b[g.`
K YY_`%%`%(`A Um!`&\$ A Um	@YWh fy	/Gh`XYbh%o`<`[g.

