



7ci fgY`Cj Yfj ]Yk

`GHUZZ7cbhUW`i8YHU]`g`

`7cbj Ybcfg`

B Ua Y	9a U]`	5j U]`UV]`]m	@cWU]hcb	D\cbY
DUb`K Ub[	DUb`k Ub[ 4 i bgk "YXi "Ui	6mUddc]bħa Ybh	A cfj Yb`6fck b`6i ]X]b[ ž`@Yj Y`&ž`Fcca `&(*	Ž`*%&`-' , ) &' (-

GW\cc``7cbhUW`i`bZcfa U]hcb

GW\cc``cZ<i a Ub]hYg`UbX`@Ub[ i U[ Yg

@cWU]hcb. `GW\cc``C Z]WžA cfj Yb`6fck b`6i ]X]b[ ž`@Yj Y`&ž`& ,

CdYb]b[ `<ci fg. `A cbXUm! : f]XUmž`- Ua `!` ) da

D\cbY. `Ž`\*%&`-' , ) `\* , %

: U! . `Ž`\*%&`-' , ) ; , +\$)

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

7 ci fgY'8YHJ]`g

7 fYX]hDc]bHg`\*`

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

Gi V'YWhUfYU.'3e[S` E fgV[Mé

H\]g'Wci fgY'Wb'U'gc'VY'ghi X]YX']b'h\Y'Zc`ck ]b[ 'gdYW]U'gUh]cb.'5 Z[ 'WéWE fgV[Mé

7 \]bU'cZ]fg'U'f]W\ 'WébhYI hZcf'YI Ua ]b]b[ 'h\Y'W'hi fYg'UbX'dc`]h]Wg'cZa YX]U'UbX'Wéa a i b]WU]cb" 'H\Y'g]nY  
UbX'Wéa d'YI ]micZ7 \]bYgY'dc`]h]Wg'YWé bca mUbX'gc'W]Ymž'UbX'7 \]bU'g'fc'Y']b'g\Ud]b[ '[ `cVU'a YX]U'UbX

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5ggYgga YbhHUg\_g`

5ggYgga YbhHUg_	K Y][ \h	8i Y'8UHŸ	Gh XYbh@YUfb]b[ Ci hWta Yg'5ggYggYX
DfYgYbhUH]cb`d`i`g`fUbgW]dh	' \$!	( da `cb`dfYgYbhUH]cb`XUm	%ž&ž
A YX]U'7ca a YbhUfm	&\$!	&* # \$' #&\$%- '\$( . \$ \$' DA	&ž ž(
F YgYUfWŸ`YggUm	) \$!	%* # \$( #&\$%- '( da	%ž&ž(

## 5ggYgga Ybh8YHU]`g

5ggYgga Ybh%`DfYgYbhUH]cb`d`i`g`fUbgW]dh

GHUfhXUHŸ. '\$) # \$' #&\$%- '%&.\$ \$' DA

8YHU]`g. `Gh XYbhg`dfYgYbhcb`h`Y`W`b`h`b`h`f`V`c`h` `Y`W`i` f`Y`g`U`b`X`'f`Y`U`X`]`b`[`g`E`c`Z`h`Y`]`f`U`g`g`[`b`Y`X`'k`Y`Y`\_`" `H` \ `]`g`'k` ]`  
 f`Y`e`i` ]`f`Y`'m`e`i` `h`c`'d`f`Y`g`Y`b`h`U`b`X`'X`]`g`W`g`g`'h`Y`'W`c`f`Y`'U`f`[`i`a`Y`b`h`g`Z`c`a`'h`Y`'k`Y`Y`\_'g`'f`Y`U`X`]`b`[`g`ž`k` ]`h`'U`X`X`]`h`c`b`U`  
 f`Y`g`Y`U`f`W`Ÿ`" `H` \ `Y`' [`c`U`'g`'c`Z`m`e`i` f`d`f`Y`g`Y`b`h`U`h`c`b`'U`f`Y`'h`c`'f`%`E`'W`c`a`a`i`b`]`W`U`h`'m`e`i` f`]`b`h`f`d`f`Y`U`h`c`b`'c`Z`h`Y`'k`Y`Y`\_'g`'a`U`]`b`  
 W`c`b`W`d`h`g`'U`b`X`' ]`X`Y`U`g`ž`'U`b`X`'f`&`E`[`Y`b`Y`f`U`h`'X`]`g`W`g`g`]`c`b`'U`a`c`b`[`'m`e`i` f`d`Y`Y`f`g`'U`b`X`'ž`'f`h`Y`f`i`b`X`Y`f`g`h`U`b`X`]`b`[`'c`Z`h`Y`  
 W`c`i`f`g`Y`'W`c`b`h`b`h`'M`c`i`'g` \ `c`i`'X`'g`i`Va` ]`h`h`Y`'f`U`b`g`W`]`d`h`c`Z`m`e`i` f`d`f`Y`g`Y`b`h`U`h`c`b`'Z`c`f`U`g`g`Y`g`g`a`Y`b`h`':`Y`Y`X`V`U`W`\_' ]`U`  
 ]`b`X`]`j` ]`X`i`U`'W`c`a`a`Y`b`h`g`'U`b`X`'f`i`V`f`]`W`

5XX]h]cbU`XYHU]`g.

F YZf`h`c`XYHU]`g`c`Z`U`g`g`Y`g`g`a`Y`b`h`HU`g`\_`g`'c`b`'A`c`c`X`'Y`

Gi Va ]gg]cb`b`c`h`Y`g`D`Y`U`g`Y`'g`i`Va` ]`h`V`c`h`'d`f`Y`g`Y`b`h`U`h`c`b`'ž`'Y`'U`b`X`'f`U`b`g`W`]`d`h`U`g`'c`b`Y`'ž`'Y`'h`c`'H`i`f`b`]`h`b`'V`m`h`Y`'X`i`Y`  
XUHŸ

Hi fb]h]b`g`Y`h]b`[` . `H` \ `]`g`'U`g`g`[`ba`Y`b`h`]`g`'g`i`Va` ]`h`Y`X`'h`f`c`i` [` \ `H`i`f`b`]`h`b`'U`b`X`'g`h`i`XY`b`h`g`'W`U`b`'g`Y`Y`'H`i`f`b`]`h`b`'g`a` ]`U`f`]`m`  
f`Y`d`c`f`g`"

5ggYgga Ybh&`A YX]U'7ca a YbhUfm

GHUfhXUHŸ. `B`c`h`5`d`d`]`W`U`V`'Y`

@Yb[ h. . , \$ \$! %ž \$ \$ \$'k`c`f`X`g`

8YHU]`g. `Gh XYbhg`'U`f`Y`'f`Y`e`i`Y`g`h`Y`X`'h`c`'W`'c`c`g`Y`'U`'g` \ `c`\$                      %o                      %o                      %o                      8YHU

Hi fb]hb'gYH]b[ . H\]g'Ugg][ ba Ybh]g'gi Va ]hX'h'fci [ \ 'Hi fb]hb'UbX'ghi XYbhg'WUb'gYY'Hi fb]hb'g)a ]'Uf]hm fYdcftg"

5ggYgga Ybh' . 'F YgYUfW'YggUm

GHUfhXUH' . Bch5dd']WVY

@Yb[ h. ' z\$\$\$'k cfXg

8YHJ]`g. 'Gh XYbhg'k f]h'Ub'YggUmifW"" z\$\$\$'k cfXg'VUgYX'cb']bXYdYbXYbhfYgYUfW": YYXVUW\_j ]U ]bX]j ]Xi U`W'ca a Ybhg'UbX'fi Vf]W'H\]g ]g'h'Y'Z]bU'UggYgga YbhZcf'Uhh'YbXUbVW'di fdcgYg"

5XX]h]cbU'XYHJ]`g.

F YZf'hc'XYHJ]`g:cZUggYgga YbhUg\_g'cb'A ccX'Y

Hi fb]hb'gYH]b[ . H\]g'Ugg][ ba Ybh]g'gi Va ]hX'h'fci [ \ 'Hi fb]hb'UbX'ghi XYbhg'WUb'gYY'Hi fb]hb'g)a ]'Uf]hm fYdcftg"



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Gi Va ]gg]cb`cZ5ggYgga YbhHUg\_g

Gi Va ]gg]cb`cZ5ggYgga YbhHUg\_g

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Ʒmci`YbWci bhYf`U`dfcV`Ya`k` \Yb`U`H`Ya` dh]b[ `hc`gi Va ]hmc`i`f`Ugg][ ba YbhHfci [ \`Hi fb]hb`z`d`YUgY  
H`Y`d`l`cb`Y`9I`H`f`b`U`Gi` ddcfhcb`-`'` ,` )` " ` ' ` ' ` %cf`Ya` U]`H`Ya` `cb`YI`H`f`b`U`H`f`gi` ddcfh4` i` bgk` "YXi` "Ui` "Gi` ddcfh  
`ci` fg`UfY` ,` .` \$\$Ua` -`-%\$.` \$\$da` `cb`k` YY`\_`XUmg`U`b`X`-` .` \$\$Ua` -` )` .` \$\$da` `cb`k` YY`\_`YbXg`f`l` \*)` `XUmg`U`m`Y`U`f`l`" Ʒmci  
UfY`i` bUV`Y`hc`gi Va ]hmc`i`f`Ugg][ ba YbhXi`Y`hc`U`Z`U`i`h`k` ]H`Hi`fb]hb`mci`i`a` UmiUdd`mi`Z`f`Ub`YI`H`f`bg]cb`z`Vi`hmc`i  
a`i` ghf`Y`H]b`mci`f`h]W`Y`h`bi`a` VYf`Z`ca` `9I`H`f`b`U`Gi` ddcfhf`U`cb[ `k` ]H`U`b`m`c`H`Y`f`f`Y`j` UbhXcW`a` Yb`hg`L`hc  
]b`Wi`XY`Ug`Y`j` ]XYbW`hc`gi` ddcfhmc`i`f`YI`H`f`bg]cb`Udd`]W`h]cb" Ʒmci`Ya`U]`9I`H`f`b`U`Gi` ddcfhmc`i`k` ]`  
Ui`h`ca`U`h]W`m`f`Y`W`]j`Y`U`h]W`Y`h`bi`a` VYf`z`Vi`h]Z`mci`H`Y`d`l`cb`Y`mci`k` ]`b`Y`Y`X`hc`gd`Y`W`Z]W`m`Ug`\_`Z`f`cb`Y`  
Hi`fb]hb`U`gc`d`fc`j` ]XYg`i` dXUH`g`cb`H`Y`f`g`m`g`H`Ya` `g`h`U`h`g`cb`H`k` ]H`Y`f`"

; YbYfU`m`z`UggYgga YbhHUg\_g`a`i` ghVY`gi Va ]H`Y`X`Y`Y`W`f`cb]W`m`j` ]U`Y`]H`Y`f`Hi`fb]hb`cf`U`A`cc`X`Y`  
Ugg][ ba Ybh`H`b` ]bg`h`U`b`W`g`k` \Y`f`Y`H`L`g` ]g`b`ch`id`c`gg]V`Y`Z`]h`k` ]`V`Y`g`H`Y`X`cb`mci`f`W`ci`fg`Y`g`A`cc`X`Y`g`]H`k` ]H`  
U`H`f`b`U`h]j`Y`gi Va ]gg]cb`XY`H]`g`"

: cf`]b`Z`fa`U`h]cb`cb` \ck`hc`gi Va ]hUgg][ ba Ybh`g`cb`]b`Y`j` ]U`A`cc`X`Y` .` \`h`td`g` .`#`g`h`XY`b`h`i` bgk` "YXi` "Ui` #`ack`!  
gi Va ]hUgg][ ba Ybh`a`cc`X`Y`"



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

D`U[ ]Uf]ga `]g`i g]b[ `h`Y`k cfXg`cf]XYUg`cZchYfg`UbX`dfYgYbh]b[ `h`Ya `Ug`mci f`ck b" `h`WUb`hU`Y`a Ubm  
Zcfa gž`Zca `XY`]VYfUh`W`YU]b[ `h`UW]XYbhU`miW`dm]b[ `Zca `U`gci fW`k ]h`ci hUW\_bck`YX[ Ya Ybh`

I BGK `[ fci dg`d`U[ ]Uf]ga `]b`h`Y`Zc`ck ]b[ `W]hY[ cf]Yg.

7 cdm]b[ .`i g]b[ `h`Y`gUa Y`cf`j Yfmg]a ]Uf`k cfXg`h`h`Y`cf][ ]bU`hI hcf]XYU`k ]h`ci hUW\_bck`YX[ ]b[ `h`Y

- i bXYfghUjX'mci f'f][ \hg'UbX'fYgdcbg]V]h]Yg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[ ]Uf]ga ž'Wc'dmf][ \hž' BGK 'Gh XYbh7cXY'cZ7cbXi W'UjX'5W'W'dhUV'Y'I gY'cZ  
I BGK '⇒H'F'Ygci f'W'g'Dc'W'h
- VY'Uk UfY'cZ'U'g'U'X'U'f'X'g'c'Z'V'Y'\U'j ]ci f'Y'I d'Y'W'X'c'Z'Y'j Y'f'm'c'b'Y'']b'U'Y'I BGK 'W'a a i b]m
- 'c'W'U'h'g'Y'f'j ]W'g'U'j'X'j'b'Z'c'f'a U'h'c'b'U'V'c'i h'i BGK 'U'j'X'I BGK '@]V'f'U'f'm

Gca Y'cZ'U'g'Y'U'f'Y'U'g'k ]''V'Y'Z'J'a ]]U'f'U'c'mci ž'c'h'Y'f'g'k ]''V'Y'b'Y'k "; U]b]b[ 'U'g'c'X'i bXYfghUjX]b[ 'cZU''U'Y  
f'Y'U'h'X'U'g'd'Y'W'g'c'Z'9@-G'9'k ]''\Y'd'mci 'a U\_Y'U'Y'a c'g'h'c'Z'mci f'g'h X]Y'g'U'hl BGK ""

[\h'c'.#g'i V'Y'W'i \]X'Y'g''j\]V'f'U'f'm'i b'g'k "Y'X'i "U'i #' \]g'Y'#U'V'c'i h'Y' \]g'Y](#)

## 5 WUXYa ]WbZcfa Uhcb`

: cf`YggYbh]U`ghi XYbh]bZcfa Uhcb`fY`Uh]b[ `hc.

- fYei Yghg`ZcfYI hYbg]cb/
- `UhY`gi Va ]gg]cbg`[ i ]XY`]bYg/
- fYj ]Yk `cZa Uf\_g/
- I B GK `<YU`h`UbX`GUZY`midc`]WYg/
- YI Ua ]bUh]cb`dfcVWXi fYg/
- gdYW]U`Vc]bg]XYfUh]cb`]b`hY`Yj Ybhcz]`bYgg`cf`a ]gUXj Ybh fY/
- ghi XYbhYei ]m]UbX`X]gUV`]m/
- UbX`chYf`YggYbh]U`UWUXYa ]W]bZcfa Uh]cbz`gYY

[\h\]dg.#k k k "Ufng`i b\]k "YXi "Ui #W ffYbh\]ghi XYbh\]bZcfa Uh\]cb`dfc\]Vc`g!\[ i \]XY`\]bYg#](#)

⇒ U[ Y`7 fYX]h

D\chc`VmF Uk d]l Y`cb`l b]gd`Ug\

7F ⇒ CG

7F ⇒ CG`Dfcj ]XYf`7cXY.`\$\$\$- ;