



MUSC3705

DYfZcfa UbWV '@JVcfUhc fm7

HYfa `Hk c`##`&\$%-



7ci fgY`Cj Yfj JYk

`GHUZZ7cbhUWhi8YHUJ`g`

`7cbj Ybcfg`

B Ua Y	9a Uj`	5j Uj`UVj`]m	@cWUjcb	D\cbY
>c\b`BUd]Yf`	^bUd]Yf4 i bgk "YXi "Ui	H65 !`WXYW`hY A ccX`Y`g]hY	K YVghYf`%%	- ' ,) * -)'

GWcc`7cbhUWhi`bZcfa Uh]cb

Fcca "`%&Z`Yj Y`` `F cVYfhK YVghYf`6i]X]b[

D\cbY.`f\$&L`- ' ,) `(,) *

9a Uj]: [gUa 4 i bgk "YXi "Ui](#)

K YVg]hY: [\hfdg.#gUa "Ufng"i bgk "YXi "Ui](#)

H\Y`GWcc`cZhY`5fng`UbX`A YX]U`k ci `X``_Y`hc`F YgdYWZ`m5W_bck`YX[Y`hY`HfUX]hcbU`7i ghrX]Ubgz`hY`6YXY[U`fP`Ybg]b[hcb`WUa di gLz; UX][U`f7`]mUbX`5fhi`8Yg][b`7 Ua di gYgE`UbX`hY`B [i bbUk U`dYcd`Y`fBi ghfU]Ub`8YZ`bVW : cfW`5WUXYa mi]b`7 UbVYffU`cZhY`UbXg`k \YfY`YUW`WUa di g`cZI`BGK`]g`cWUHYX"

7ci fgY'8YHJ]`g

7fYX]hDc]bHg`(`

Gi a a UfmicZhY'7ci fgY

Gi VYWh5fYU.? ge[U BWA d_ S` UW ? ge[U 7` eW_ T`W

H\Y'UWēi]g]hcb'cZ\[\`mXYj Y'cdYX'Wē`UVcfUhj Y'UbX'dfYgYbhUhc'b'g_]`g']bWYUg]b[`m]a dcfUbh]b
WēbHya dcfUfma i g]Wa U_]b[`UbX'hli g'fY'Yj UbhZcf'hY'dfY'dfcZYgg]cbU`fU]b]b[`cZU`'ghi XYbHg`]b'U`
gfYUa g'cZhY'6A i g'dfc[fUa "'A I G7' +\$) 'DYfZfa UbW' @UVcfUhcfm7 `]g'hY'h.]fXz'UbX'Z]bU'z
DYfZfa UbW' @UVcfUhcfmWēi fgY'Zcf'gh XYbHg`Ybfc`YX`]b'hY'A i g]Wē'c[mUbX'Gcb]W5fHg`gfYUa g'cZhY
6UWY'cf'cZA i g]Wdfc[fUa "'H\]g'Wēi fgY'Vi `]Xg'cb'hY'h'WXb]WU`UbX'WYUhj Y'Zci bXUhc]bg`XYj Y'cdYX`]b
YUf]Yf'DYfZfa UbW' @UVcfUhcfmWēi fgYgž'UbX'hY'Uk UfYbYgg'cZU'fUb[Y'cZa i g]WU`] YbYg'UbX'dfUW]Wg
YbWēi bhYfYX`]b'chYf'Wēi fgYg`]b'hY'a i g]Wdfc[fUa "'Gh XYbHg`YUfb'hc`Udd'mW]h]WU`]ghYb]b[`UbX
fYUX]b[g'cZdYfZfa UbW']hYfUhi fYž'UbX'[U]b'g_]`g'UbX'YI dYf]YbW']b'hY'XYj Y'cda YbhUbX'W' fUhc'fg\]d'cZ
]bbcj Uhj Y` [fci d'dYfZfa UbW'g"

BchY. `H\]g`g`U`%&`I C 7`Wēi fgY`"Mēi `k`]`Ybfc`]b[(` I C 7`]b`YUW`cZhYfY`gi W`Wgg]j Y'hYfa g`k`]h`U`fYgi `h
fYdcfYX`VmU`g]b[`Y` [fUXY`Uh'hY`YbX`cZhY'h.]fX`(` I C 7` Wēi fgY"

7ci fgY'@YUfb]b[`Ci hWēa Yg

%` 5dd'mW]h]Wga `UbX'UbU'mg]g'cZhY`]hYfUhi fY'cb'dYfZfa UbW'ž'UbX'cZa UghYf'WUgg'dfYgYbhUhc]bgž
hc'hY'dfYdUfUhc]cb'cZhY]f'ck b'dYfZfa UbW'
&" 8Yg][b'UbX'dfYgYbhYZZYW]j Y'YbgYa V`Y'a Uhf]U`UbX'dYfZfa UbW'g
' " 5dd'mdf]bW]d`Yg'cZHYa k cf`_`hc'a i g]WYbgYa V`Y

HYUW]]b[`GhfUH[]Yg`

ē`k cf_g\cdg`@UVcfUhcfm- `I`%) ` \ci fg`YUW` hf]a YghYfQ`]bghfi a YbhU`UbX'j cWU`'ghi XYbHg`k`]` [U]b
dYfZfa UbW' YI dYf]YbW'ž`k` \]Y` Wēa dcg]hcb'ghi XYbHg`k`]` VYWēa Y`ZJa`]]Uf`k`]h`]ggi Yg`UZYW]b[
dYfZfa UbW' UbX'dYfZfa UbW' dfYdUfUhc]b`"K cf_g\cd`gYh]b[g`k`]`U`gc`gi ddcfhYb[U[Ya Ybhk`]h`]ggi Yg
WēbW'fb]b[`Wē`UVcfUhc]b'UbX'dfYgYbhUhc]b`"Gh XYbHg`k`]`UhYbX'a UghYfWUggYg`YX`Vmij]g]h]b[`YI dYfHg`]b'U
fUb[Y'cZa i g]WU`]bghfi a YbHgž`j c]W'g'UbX'gmiYgž'YbWēi fU[]b[`ghi XYbHg`hc`XfUk`]`]b_g`UbX'Wēa dUf]gcbg
k`]h`hY]f'dYfgcbU`'ghi X]Yg`@YWhi fY`W'ccg]b[`(`I`&`\ci fg`Zfa `b]bY'a UghYfWUggYg`UW'fcgg'hY'mYUfQ`5`
ghi XYbHg`k`]`Yb[U[Y`fYZYI]j Y'm]b`X]fYW'X`YbgYa V`Y`UW]j]mž`W'ccg]b[`Zfa `U`k`]XY`fUb[Y'cZa i g]WU`
gmiYg'UbX'W`hi fYg`Gh`X]c` , `I`&`\ci fg`YUW` hf]a YghYfQ` ē`hY`H&k cf_g\cdg`@UVcfUhcfmQ`ghi XYbHg`k`]`
fYW'j Y'dfUW]WU`fU]b]b[]b`YbgYa V`Y`WēcfX]bUhc]cbz`WēbXi`W]b[`UbX'YbhYdfYbYi fg\]d`Zfa `Ub`YI dYfh]b
h.]g`Z`X"

5ggYgga Ybh

5ggYgga YbhHUg_g

5ggYgga YbhHUg_	K Y][\ h	8i Y'8UH	Gh XYbh@YUfb]b[Ci hWta Yg'5ggYggYX
9bgYa V`Y`Wc bfh]Vi h]cbž dYfZcfa UbWgždUfhWXYW_]b[hYgh	&\$i	9bgYa V`Y`dUfhWXYW_]b['hc VY`Wta d`YhX`Vm hY`YbX`cZ k YY_`%`]b`YUW`hYfa	'
DYfZcfa UbW`dcfhZc`]c`	%)	:]fghdUfhXi Y`- h`5i [i ghž &bX`dUfhXi Y`&&bX Bcj Ya VYf	%
DYfZcfa UbW`#dfYgYbhfU]cb`	')	h`Ugg][bYX`k YY_g`]b`H%`UbX H'	%&
:]bU`Dfc`YWh	' \$i	:]bU`dfc`YWh`k]`VY dfYgYbhfX`]b`K YY_`%\$`cZH'	%&

5ggYgga Ybh8YHU]`g

5ggYgga Ybh%`9bgYa V`Y`Wc bfh]Vi h]cbždYfZcfa UbWgždUfhWXYW_]b[`hYgh

GHUfhXUH`.

8YHU]`g. 9bgYa V`Y`dUfhWXYW_]b[`k]`VY`i bXYfhU_Yb`]b`H%`H&`UbX`H' " `hX]j]Xi U`mcf]b`ga U`[fci dgž gh XYbh]k]`dYfZcfa `k cf_g`cf`Yi Wfdhg`cZk cf_gž`gh X]YX`UbX`dYfZcfa YX`Xi f]b[`hY`hf]a YghYf`K `YfY Uddfcdf]UHžYI Wfdhg`k]`VY`gY`YWhX`Vm hY`dUfhWXYW_]b[`Yi Ua]bYf`8]fYWhiZYXVUW`Xi f]b[`fY`YUfgU`g UbX`k cf_g`cdg`UbX`U`Zcfa U`fYdcfhUhhY`Wc bWi g]cb`cZ hY`gYgg]cb`" Gh XYbh]fWc bfh]Vi h]cb`hc`YbgYa V`Y`dYfZcfa UbWg`UbX`k cf_g`cdg`k]`VY`UggYggYX`h`fci [\ `U`dUfhWXYW_]b[`Yi Ua]bU]cb`"

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

D`YUgY`Wcbgi`h`hY`9bgYa V`Yg`A ccX`Y`g]h`Zc`f`hY`XYHU]`g`cZ`hY`]bX]j]Xi U`YbgYa V`Y`fYei]fYa Ybh]`H`Y gh XYbh]Uj YfU[`Y`YbgYa V`Y`a Uf`_Zc`f`YUW`hYfa `k]`VY`i`gYX`hc`WU`W`UH`hY`Z]bU`a Uf`_Zc`f`hY]g`hUg`_"

5ggYgga Ybh&. `DYfZcfa UbW`dcfhZc`]c`

GHUfhXUH`.

@Yb[h.) \$ \$`k cfXg`dYf`a UghYfWUgg`UH`YbXYX

8YHU]`g. `Hk c`dcfhZc`]cg`cZ`UbbchUH`X`gci fW`a UH`f]U`i`gYX`]b`dYfZcfa UbW`dfYdUfU]cb`fV]V`]c[fUd`mž X]gVc[fUd`mž`j]XYc[fUd`m]UbX`bc`hY`g`cb`Uh`Y`Ugh(`a UghYfWUggYgE`Dc`fhZc`]cg`k]`VY`gi`Va]hYX`h`fci [\ Hi fb]h]b`UbX`a Uf`_YX`Vm`hY`Y`WWh`fYf`"

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

Gh XYbh]dfYgYbhfU]cb`]b`h`k`c`dUfhgž`cbY`Uh`hY`YbX`cZH&`hY`c`hYf`Uh`hY`YbX`cZH'

Hi fb]hjb'gYHjb[. H\]g'Ugg][ba Ybh]g'gi Va]H\X'h'fci [\ 'Hi fb]hjb'UbX'gh XYbHg'WUbg'gYY'Hi fb]hjb'ga]'Uf]hm fYdcfng"

5ggYgga Ybh' . 'DYfZcfa UbW'W#dfYgYbHh]cb

GHUfhXUHY .'

8YHJ]`g. 'H\ fYY]b!WUgg'dYfZcfa UbW'g'gWUJZc`X]b['UggYgga YbhHJg_ ('Gdc_Yb'ZYXVUW_`k]`VY '[]j Yb`Vm hY`YWhi fYf']b`WUggZ'UbX'k f]H\Yb'ZYXVUW_`g\cfhmUZf

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

Gh XYbHg'k]`'[]j Y`U'a]b]a i a `cZcbY'ga U``[fci d'dYfZcfa UbW'`]b`H%ž'UbX'h'c'ga U``[fci d'dYfZcfa UbW'g]b`H'

Hi fb]hjb'gYHjb[. H\]g]g'bchU'Hi fb]hjb'Ugg][ba Ybh

5ggYgga Ybh(. :)bU`Dfc`YWh

GHUfhXUHY .'

8YHJ]`g. ; fci d'dYfZcfa UbW'cf'di V]Wmg\ck b]j]XYc"K f]H\Yb'ZYXVUW_`k]`VY'dfcj]XYX`VmH\Y YI Ua]bYffgŁ

5 hYbXUbW'F Yei]fYa Ybhg

5 hYbXUbW'Uh@YWhi fYg'f7 @C '&L'UbX'9bgYa V'Y'F Y\YUfgU'g'f7 @C '&'UbX'' L']g'a UbXUhcfm]b'h'lg'Vci fgY"

I bYI W'gYX'UVgYbW'Zca 'a cFY'h'Ub'&)i 'cZ@YWhi fYg'cf'&)i 'cZ9bgYa V'Y'F Y\YUfgU'g']b'UbmicbY'h'fa a UmfYgi 'h]b'h'Y'Uk UfX]b['cZU'ZJ]'[fUXY'"Gh'XYbhg'a i ghU'hYbX'Uh'YUgh('cZ'h'Y'-'a Ugh'Y'fWUggYg'fC'h'Yf]b'h'Y'h'a YhUV'Y'g'WXYXi 'YX'UW'cgg'h'Y'h'fY'Y'h'fa g'f7 @C '%L

7 ci fgY'GWXYXi `Y

[J \]yk'WUgg'h'a YhUV'Y](#)

H]a YhUV'Y'

8UhY	HmdY	7cbhYbh
K YY_%''>i bY!'+'>i bY		5''YWhi fYg'k]''bj'c]Y'h'Y'h'YcfmUbX'dfUW]W'cZ WcbXi W]b[''5'Z ''gWXYXi 'Y'k]''VY'XYj Y'cdYX'Vm'h'Y 'YWhi fYfZ'UbX'dfYgYbh'X']b'K YY_%"

F Ygci fWg

DfYgW]VYX`F Ygci fWg`

BchUj U]UV`Y

F YWca a YbXYX`F Ygci fWg

BchUj U]UV`Y

7ci fgY`9j U`i Uh]cb`UbX`8Yj Y`cda Ybh

: YYXVUW`cb`hY`Wci fgY`k]`VY`a UXY`hfc i [\ `hY`a m9l dYf]YbW`E i Ygh]cbU]fY" H\]g`]g`U`bYk `Wci fgY" `kg
Wcb]YbhUbX`hUW]b[`a YhcXg`\Uj Y`VYYb`g\UdYX`dUfhm]b`fYgdcbgY`hc`Yj U`i Uh]cb`cZYUf]Yf`DYfZcfa UbVW
@UVcfUhcfm7ci fgYg`Uh]g`Yj Y" `7\Ub[Yg`]bWi XY`U`ga U`Yf`WUgg`g]nYzYb\UbW`X`]b!WUgg`dYfZcfa UbVW
cddcfh`b]h]Ygž`hY`d`Ubb]b[`cZ]bZcfa Uh]cbU`"YW`h`fYg`]bj`c`j`]b[`dYfZcfa UbVW`]ggi Ygž`U`ghfYb[`hYbYX
WcbXi W]b[`Wca dcbYbž`UbX`hY`fYh]fYa Ybhcz`hY`@]gh]b]b[`HYgh` `b`UXX]h]cbž`=\Uj Y`XYj Y`cdYX`U`a cfY
X]gW fg]j Y`UddfcUW`hc`a UbU[]b[`gh`XYbh[cU`g`UbX`ZYXVUW`"

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

Hi fb]hb`Gi Va]gg]cb

≠mci`YbWci`bHYf`U`dfcV`Ya`k`Yb`U`HYa`dh]b[`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybh`h`fci`[`\`Hi`fb]hb`z`d`YUgY`
HY`Yd`cbY`9I`HYfb`U`Gi`ddcfh`cb`-`,`)`'`'`'`%cf`Ya`U]`h`Ya`cb`YI`HYfb`U`HY`hgi`ddcfh`4`i`bgk`"YXi`"Ui`"Gi`ddcfh`
`ci`fg`UfY`,`.\$\$Ua`-`%\$.\$\$da`cb`k`YY`XUmg`UbX`-`.\$\$Ua`-`).\$\$da`cb`k`YY`YbXg`fI`*)`XUmg`U`mY`UfL`"≠mci`
UfY`i`bUV`Y`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybh`Xi`Y`hc`U`ZU`i`hik`]h`Hi`fb]hb`mci`a`Um`Udd`mi`Zc`f`Ub`YI`HYbg]cb`z`Vi`hmc`i`
a`i`gh`fY`hU]b`mci`f`h]W`Yhbi`a`VYf`Z`ca`9I`HYfb`U`Gi`ddcfh`f`U`cb[`k`]h`Ub`mci`h`Yf`fY`Yj`Ub`h`Xc`W`a`Yb`hg`L`hc`
]b`Wi`XY`Ug`Yj`]XYb`W`hc`gi`ddcfh`mci`f`YI`HYbg]cb`Udd`]W`h]cb`"≠mci`Ya`U]`9I`HYfb`U`Gi`ddcfh`mci`k`]`
Ui`hca`U`h]W`m`fY`W`]j`Y`U`h]W`Yhbi`a`VYf`z`Vi`h]Z`mci`HY`Yd`cbY`mci`k`]`b`YYX`hc`gd`Y`W`Z]W`m`Ug`_`Zc`f`cbY`"
Hi`fb]hb`U`gc`d`fcj`]XYg`i`d`XU`h`g`cb`h`Y]f`gm`gh`Ya`g`hU`h`g`cb`Hk`]h`Yf`"

;`Yb`Yf`U`m`z`Ugg`Ygga`Ybh`HUg_g`a`i`gh`VY`gi`Va`]h`Y`X`Y`Y`W`f`cb]W`m`j`]U`Y`]h`Yf`Hi`fb]hb`cf`U`A`cc`X`Y`
Ugg][`ba`Ybh`f`b`]bg`h`Ub`W`g`k`Y`fY`h`l`g`]g`b`chid`cgg]V`Y`z`]h`k`]`VY`g`h`U`h`X`cb`mci`f`Wci`fg`Y`g`A`cc`X`Y`g`]h`k`]h`
U`h`f`b`U`h]`Y`gi`Va`]gg]cb`XY`hU]`g`"

:`cf`]b`Zc`fa`U`h]cb`cb`\`ck`hc`gi`Va`]h`Ugg][`ba`Ybh`g`cb`]b`Y`j`]U`A`cc`X`Y`.\`h`td`g`#`gh`X`b`Y`j`h]b`cf`U`A`cc`X`Y`

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" #WUbb'U_Y'a Ubm
Zcfa gZ Zca 'XY'VYfUHY'WXUhb]b['hc'UWVXYbhU`mWcdm]b['Zca 'U'gci fW'k]h'ci 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`hYI hcf'XYU'k]h'ci 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 'dfYgYbhg'Ubch'Yf'g'XYUg'cf'k cfXg'k]h'ci hWYX]h'

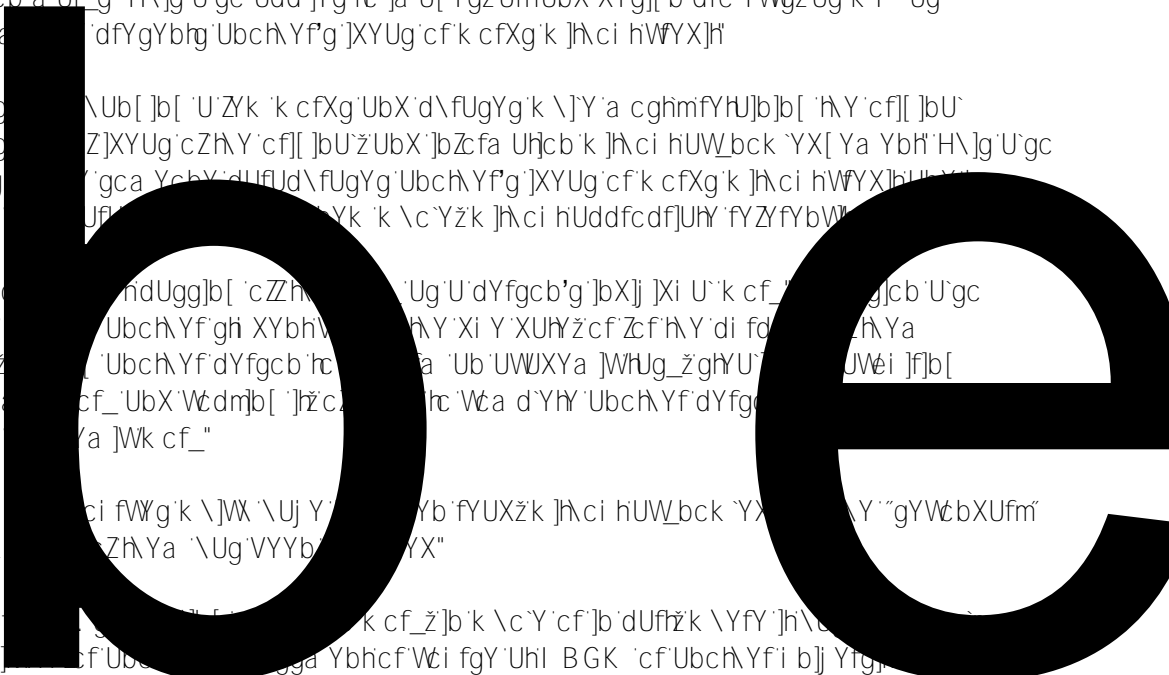
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gh'i W'fY'UbX'#f'dfc['fYg'Z]XYUg'cZ'hY'cf][]bU'z'UbX']bZcfa U]cb'k]h'ci hUW_bck 'YX['Ya Ybh' 'H\g'U'gc
Udd'Yg']b'dfYgYbhU]cbg' 'gca YcbY'dUfUd\UgYg'Ubch'Yf'g'XYUg'cf'k cfXg'k]h'ci hWYX]h'U'Y'
d]Y]b]b['hc['Yh'Yf'ei chYg'Uf' 'Yk 'k \c'Yz'k]h'ci hUddfcdf]UHY'fYZfYbW'

7c`i g]cb.'k cf_]b['k]h'ci 'ndUgg]b['cZ'h'Ug'U'dYfgcb'g']bX]j]Xi U'k cf_]g]cb'U'gc
]bW' XYg'dfcj]X]b['mci f'Ubch'Yf'gh'XYbh' 'hY'Xi Y'XUHY'Zcf'Zcf'hY'di fd'Z'hYa
d`U[]Uf]g]b['Uh'Ubm]h'a YZ' 'Ubch'Yf'dYfgcb'hc']a 'Ub'UWUXYa]WUg_z'ghYU'UW'e]f]b[
Ubch'Yf'dYfgcb'g'UWUXYa 'cf_'UbX'Wcdm]b[]h'c'hc'Wca d`Yh'Ubch'Yf'dYfg']h'ci hUW_bck 'YX['Ya Ybh'
dUma Ybh'Zcf'Wca d`Yh]b['Ya]Wk cf_"

#Uddfcdf]UHY'W]h]cb.'7' 'ci fW'g'k \]W' \Uj Y'Yb'fYUXz'k]h'ci hUW_bck 'YX['Y`'gYWcbXUfm'
gci fW'Zca 'k \]W'_bck 'Z'hYa '\Ug'VYYb' 'YX"

8i d']WU]cb'f'f'gY'Zd`U[]Uf]ga]bhc'hY'Zc`ck]b['WUHY[cf]Yg.'k cf_z]b'k \c'Y'cf']b'dUf'z'k \YfY']h'ci hUW_bck 'YX['Ya Ybh'
VYYb'dfYdUfYX'cf'gi Va]bhc'f'Ubb'gga Ybhcf'Wci fgY'Uhi BGK 'cf'Ubch'Yf'i b]j Yfg'

7cffYW'fYZfYbW]b['dfUW]W'g.



- i bXYfgHUbX'mci f'f][\hg'UbX'fYgdcbg]V]]hYg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[]Uf]ga ž'Wcdmf][\hž' BGK 'Gh XYbh7cXY'cZ7cbXi WñUbX'5WwdfUV'Y'I gY'cZ
I BGK '⇒H'F Ygci fW'g'Dc`]Wñ

~

5 WUXYa]WbZcfa Uhcb`

: cfYggYbhU`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/
- gdYWU`W`bg]XYfUh]cb`]b`hY`Yj YbhcZ]`bYgg`cf`a]gUXj Ybh fY/
- ghi XYbhYei]hmUbX`X]gUV`]`hm/
- UbX`chYfYggYbh]U`UWUXYa]W]bZcfa Uh]cbz`gYY

[\h\g.#k k k "Ufmg"i bgk "YXi "Ui #W ffYbhghi XYbh\]bZcfa Uhcb`dfc\]W`g!\[i \]XY`\]bYg#](#)

⇒ U[Y`7 fYX]h

H\]g`]a U[Y`]g`hY`dfcdYfmcZ`hY`W`i fgY`W`bj Ybcf"

7F ⇒ CG

7F ⇒ CG`Dfcj]XYf`7cXY.`\$\$\$- ;