

HUMS1006

DfYgYbhUhjcb UbX 7 ca a i b]WUhjcb G_]~g

Gi a a Yf "# "&\$%

 $: cf'a \ cfY']bZcfa \ UhlYbXUbVW'dfchcWc`gž'gYY'h\Y'G5A'dc`]W]Yg`UbX'[i]XY`]bYg k YVdU[Y.'\hdg.##gUa "Ufhg"i bgk "YXi "Ui #ghi XYbhg#Ygci fVWg#dc`]W]Yg![i]XY`]bYg#$

9ggYbh]U` ±bZcfa Uh]cb

5```G5A 'ghi XYbhg'a i gha U_Y'U'j U']X'UhhYa dh'Uh'U```UggYgga Ybhg']b'cfXYf'hc'dUgg'h\Y'Wci fgY"

: cf`YggYbh]U``ghi XYbh`]bZcfa Uh]cb`fY`Uh]b['hc.`UhhYbXUbW'`fYei]fYa Ybhg/fYei Yghg`Zcf`YI hYbg]cb/fYj]Yk 'cZa Uf_g/cWW dUh]cbU``\YU`h\`UbX`gUZYhm'YI Ua]bUh]cb`dfcWYXi fYg/gdYV]U``Wcbg]XYfUh]cb`]b`h\Y`Yj YbhcZ]``bYgg`cf`a]gUXj Ybhi fY/ghi XYbhYei]hmUbX`X]gUV]`]hm/UbX`ch\Yf`YggYbh]U``a UhhYfgž`gYY`h\Y`G5A `Dc`]W]Yg UbX; i]XY`]bYg*k YVdU[Y.`\hdg.##gUa "Ufhg"i bgk "YXi "Ui #ghi XYbhg#Ygci fWYg#Uc`]W]Yg![i]XY`]bYg#

7ci fgY 8YHJ g

7 fYX]hDc]bhg**

Giaa UfmcZh\Y 7ci fgY

GdYU_]b['k]th 'WcbZ]XYbWYz'th'``]b['U'ghcfmz'd]tW\]b['U'WcbWYdtzYb[U[]b['Ub'Ui X]YbWY'UbX'g\Uf]b[']XYUg'—th YgY'UfY'YggYbt]U``g_]``g'Zcf'a U_]b['mci f'a Uf_]b'th Y'WcbtYa dcfUfmk cf'X"'±b'th]g'Yb[U[]b['Wci fgYz'mci k]```YUfb'dfYgYbtUt]cb'g_]``g'UbX'Wca a i b]WUt]cb'th'W\\b]ei Yg'i gYX'Vm]bZi Ybt]U```YUXYfgz'Wca dY``]b[ghcfmtY``Yfg'UbX'YZZYWf] Y'dfYgYbtYfg"'Mci 'k]```ghi XmYl Ua d`Yg'cZ[fYUhghcfmtY``]b['VmUWhcfgz'a chjj Ut]cbU` gdYYW\Yg'Vmdck YfZ ``Wca a i b]WUhcfgz'UbX'di V`]WgdYU_]b[']b'dfcZYgg]cbU``dfUWfWY''DfUWfWY'' bf cdgz'UbX'di V`]WgdYU_]b[']b'dfcZYgg]cbU``dfUWfWY'''DfUWfWb'' 6m Zc``ck]b['Yl Ua d`Yg'UbX'fY\YUfg]b[']b'WUggz'mci 'k]```XYj Y`cd'th\Y'WcbZ\XYbW''hc'dfYgYbhmci f']XYUg']b'Ub

hc h\Y dfcZygg]cbU``WcbhYl hg UbX`X]gW]d`]bY`cZh\Y`ghi XYbhg"'H\Y`cb`]bY``YUfb]b['ZYYXg`]bhc h\Y`gYWcbX UggYgga YbhHUg_. 'Ub'UbU`mh]WU``fYdcfhicb'U`WUgY`ghi Xmž'%) \$\$`k cfXg"'Ghi XYbhg`k f]hY`U`fYdcfhiUbU`mn]b[WcbhYl hž[YbfY`UbX`hYWkb]ei Yg`]b'U'dfYgYbhUh]cb'WkcgYb'Zfca 'U``]ghicZ`]j Y`UbX`fYWcfXYX`Yl Ua d`Yg"'H\Y fYdcfhidfcj]XYg`Ub'cddcfhi b]hmZcf`ghi XYbhg`hc`Yj U`i UhY`\ck 'dfYgYbhYfg`Wca a i b]\WUhY`UbX`hc`UbU`mnY`h\Y]f hYWkb]ei Y"

H\Y`Z\bU``UggYgga YbhitUg_`]g`U`ghi XYbhi`YX``YUfb]b[`ghfUhY[m''9UW\`ghi XYbhidfYdUfYg`Ub`cf][]bU`dfYgYbhUh]cb`]b`U`gdYWJZ\W[YbfYžXfUk]b[`cb`WcbhYbhih\Uh]g`fY`Yj Ubhirc`h\Ya "'H\YmXY`]j Yf`h\YdfYgYbhUh]cb`Y]h\Yf``]j Y`]b`WUggž`cf`Ug`U`fYWcfX]b[`igi]hUV`Y`Zcf`cb`]bY`X]ghf]Vi h]cbž`XYa cbghfUh]b[`h\Y`g_]``gh\Ym\Uj Y`UWei]fYX`Xi f]b[`h\Y`Wci fgY"'H\YmUfY`U`gc`fYei]fYX`rc`fYgdcbX`Wcbghfi Whj Y`mhc`dfYgYbhUh]cbg[]j Yb`Vmch\Yfg`UbX`dfcj]XY`ZYYXVUW_hc`h\Yfg'U**`a]bi hY`cf`-\$\$`k cfXg`Yei]j U`Ybh'

5ggYgga Ybh

5ggYgga Ybh'HUg_g

5ggYgga Ybh'hUg_	K Y][\h	8i Y'8UHY	Gh XYbh@YUfb]b[Ci hWca Yg 5ggYggYX
±b!WUgg'UbX'C b`]bY 91 YfW]gYg'	&\$I	\$, #/&#&\$%+`\$).\$\$`DA</td><td>%ž&</td></tr><tr><td>5bU`mhj\WU``FYdcfhi</td><td>(\$1</td><td>% #%.#&\$%+`\$).\$\$`DA</td><td>%ž&</td></tr><tr><td>DfYgYblUljcb</td><td></td><td></td><td></td></tr></tbody></table>	

5ggYgga Ybh' DfYgYbhUh]cb

GhUfh'XUhY.

@Yb[h\.**a]bihYq

8YHJ]`g. `9]h\Yf`fYWcfXYX`cf``]j Y"`*`a]bi hYg"H\]g']g'h\Y`**Z**|bU``UggYgga Ybh'HJg_"F i Vf]W]bX]WJh]b[``Yj Y``cZ dYfZcfa UbW'`U[U]bghYUW\`UggYgga Ybh'Wf]hYf]Už'k f]hhYb`Zcfa Uh]j Y`ZYYXVUW_ž'UbX`dYfWbhU[Y`[fUXY"`

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

5ggYgga Ybh' `]g'dfYgYbh'X`]b'Y]h\Yf'h\Y`YWi fY'f%\$Ua!%&da Ł`cf'h\Y'h hcf]U`'f%da!' da 'cf' da!) da Ł'cb Hi YgXUm'%&'8YWfa VYf`&\$%+"'Ghi XYbhg'k]``VY']bj]h\X'hc'WkccgY'k\Yh\Yf'hc'dfYgYbh']b'h\Y``YWi fY'cf hi hcf]U`"'Mci 'a Um'WkccgY'hc'dfYgYbh'5ggYgga Ybh' ``]j Y`]b!WUgg'cf'dfY!fYWcfXYX'cb'j]XYc"'Mci 'a i gh dfYgYbh'5ggYgga Ybh' '`]j Y']b!WUgg']Zmci 'dfYgYbh'X`5ggYgga Ybh'%'&'dfY!fYWcfXYX'cb'j]XYc"

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

Gh XYbhgʻUfYʻYl dYWYX`hcʻdi hh\Y]fʻbUa YgʻUbXʻgh XYbhibi a VYfgʻcbʻYj YfmdU[YʻcZh\Y]fʻUgg][ba Ybhgʻ

Hi fb]h]b Gi Va]gg]cb

#mci YbWci bhYf'U'dfcV'Ya 'k \Yb'UthYa dr]b['rc'gi Va]hmci f'Ugg][ba Ybht\fci [\'Hi fb]r]bž'd'YUgY
hY'Yd\cbY'9I hYfbU'Gi ddcfhcb'-',) '''' %cf'Ya U]''h\Ya 'cb'<u>Yl hYfbU'hY'hgi ddcfh4 i bgk "YXi "Ui"</u>"'Gi ddcfh
\ci fg'UfY', .\$\$Ua '-'%\$.\$\$da 'cb'k YY_XUmg'UbX'-.\$\$Ua '-').\$\$da 'cb'k YY_YbXg'fl *) 'XUmg'U'mYUft\"'=\maintention
UfY'i bUV'Y'hc'gi Va]hmci f'Ugg][ba YbhXi Y'hc'U'ZJi 'hk]h\'Hi fb]h]b'mci 'a Um'Udd'm\Zcf'Ub'YI hYbg]cb\ZVi hmci
a i ghfYhJ]b'mci f'h]\W_Yhbi a VYf\Zfca '9I hYfbU''Gi ddcfhfU'cb['k]h\'Ubmch\Yf'fY'Yj UbhXcW'a Ybhgt'hc
]bWi XY'Ug'Yj]XYbW' hc'gi ddcfhmci f'Yl hYbg]cb'Udd']\WJh]cb'''=\maintention 'Ya U]''9I hYfbU''Gi ddcfhmci 'k]'`
Ui hca Uh]\WJ'`mfY\W']j Y'U'h]\W_Yhbi a VYf\ZVi h]Zmci 'hY'Yd\cbY'mci 'k]'\'bYYX'hc'gdY\W]\Z\WJ'`mUg_'Zcf'cbY''
Hi fb]h]b'U'gc'dfcj]XYg'i dXUhYg'cb'h\Y]f'gmghYa 'ghUh' g'cb'Hk]hYf''

; YbYfU`m]b`G5A 'h\YfY`k]``bc``cb[Yf`VY`Ubm\\UfX!\&dmgi Va]gg]cb/UggYgga Ybhg`a i ghVY`gi Va]h\X Y`Y\fcb]\W\`mj]U`Y]h\Yf`Hi fb]h]b`cf`U`A ccX`Y`Ugg][ba Ybh'`\\\b`]bghUb\W`g`k\\YfY`h\]g`]g`bchdcgg]V`Y`]hk]```VY ghUh'X`cb`mci f`\\circ`i fgY'g`a ccX`Y`g]hY`k]h\`U`hYfbUh]j Y`gi Va]gg]cb`XYhU]`g"

@UhY 5ggYgga Ybh'DYbU`h]Yg

5b'UggYggYX'HUg_']g'XYYa YX``UhY']Z]h']g'gi Va]hhYX'UZhYf'h\Y'gdYW]Z[YX'h]a Y'UbX'XUhY'Ug'gYhci h']b'h\Y Wci fqY'@YUfb]b['A UbU[Ya YbhGmqhYa 'f@A GŁ"

 $\label{thm:condition} $$HY^UHY^dYbU^m]g^hY^cgg^cZ)_L^cZ^hY^hcHU^dcgg]VY^aUf_g^Zcf^hYY^HUg_Z^cf^YUW^XUmcf^dUfhhYfYcZhY^kcf_]g^UHY^@UhYbYgg^k]^*]bW^XY^kYY_YbXg^UbX^di_V^]WYc^]XUmg^"HY]g^XcYg^bchUdd^mhc^U'HUg_'hWh]g^UqqYqqYX^Vi_hbc^aUf_]g^Uk_UfXYX"$$$

K cf_'gi Va]hhYX'Zci fhYYb'fl%(Ł'XUmg'UZhYf'h\Y'Xi Y'XUhY'k]``VY'a Uf_YX'UbX'ZYYXVUW_'dfcj]XYX'Vi hbc'a Uf_ k]``VY'fYWcfXYX"' ₹h\Y'k cf_'k ci `X'\Uj Y'fYWr]j YX'U'dUgg'a Uf_'Vi hZcf'h\Y``UhYbYgg'UbX'h\Y'k cf_']g'U Wca di `gcfm'Wci fgY'Wca dcbYbhz'U'gh XYbh'k]``VY'XYYa YX'hc'\Uj Y'a Yhih\UhfYei]fYa Ybh''H\]g'XcYg'bch Udd`mhc'U'hUg_'h\Uh']g'UggYggYX'Vi h'bc'a Uf_']g'Uk UfXYX"

K cf_'gi Va]hh/X'hk YbhnlcbY'f&&XUmg'UZhYf'h\Y'Xi Y'XUhY'k]``'bchVY'UWWdhYX'Zcf'a Uf_]b['cf'ZYYXVUW_UbX'k]``'fYWY']j Y'bc'a Uf_'cf'[fUXY"'=Zh\Y'UggYgga YbhHUg_']g'U'Wca di `gcfmWca dcbYbhcZh\Y'Wci fgY'U ghi XYbhk]``'Ui hca UhJWU``mZJ]`'h\Y'Wci fgY"

GdYWJU`7cbg]XYfUhJcb55dd`]WUhJcbg

 $\label{eq:linear_continuity} $$Mc_i = W_0 - W_$

G]W_bYggža]gUXj Ybhi fY'cf'ch\Yf'W]fW a ghUbWrg'VYmcbX'mci f'Wcbhfc``a Um

ł DfYj Ybhimci Zfca Wca d`Yhlb[U.Wci fqY fYei]fYa Ybhž

ł? YYd mci Zfca 'UthYbX]b['Ub 'UggYggUV'Y 'UWnji]tmž

ł Ghod moi gi Va]hh]b['UggYggUV'Y k cf_ Zcf'U Wci fgYž

ł `G][b]Z]\WbhmUZZY\Wimci f`dYfZcfa Ub\Wr`]b`UggYggUV`Y`k cf_ž`VY`]h'U`Zcfa U``YbX!cZgYa YghYf`Yl Ua]bUh]cbž`U \WUgg`hYghž`U``UVcfUhcfmhYghž`U`gYa]bUf`dfYgYbhUh]cb`cf`Ubmch\Yf`Zcfa 'cZUggYgga Ybh'

: cfiZ fh\Yf'XYfU]`g']b'fY`Uf]cb'hc'GdYVJU``7 cbg]XYfUf]cb']bWi X]b['''K \Yb'hc'5dd`m'ž'''< ck 'hc'5dd`m'`UbX ''Gi ddcfi]b['8cW a YbfUf]cb''d`YUgY'fYZYf'hc'h\Y'GdYVJU``7 cbg]XYfUf]cb'k YVgf]Y. \Hdg.#gh XYbh'i bgk "YXi "Ui #gdYVJU'!Wcbg]XYfUf]cb

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

Gh XYbhg UfY Yl dYWYX hc di hh\Y]f bUa Yg UbX gh XYbhbi a VYfg cb Yj YfmdU[Y cZh\Y]f Ugg][ba Ybhg"

Hi fb]h]b Gi Va [kfb]kb

idd@g \$

ł `G][b]Z]\WbhmUZZY\Wimci f`dYfZcfa Ub\Wr`]b`UggYggUV`Y`k cf_ž`VY`]h'U`Zcfa U``YbX!cZgYa YghYf`Yl Ua]bUh]cbž`U \WUgg`hYghž`U``UVcfUhcfmhYghž`U`gYa]bUf`dfYgYbhUh]cb`cf`Ubmch\Yf`Zcfa 'cZUggYgga Ybh'

: cfiZ fh\Yf'XYfU]`g']b'fY`Uf]cb'hc'GdYVJU``7 cbg]XYfUf]cb']bWi X]b['''K \Yb'hc'5dd`m'ž'''< ck 'hc'5dd`m'`UbX ''Gi ddcfi]b['8cW a YbfUf]cb''d`YUgY'fYZYf'hc'h\Y'GdYVJU``7 cbg]XYfUf]cb'k YVgf]Y. \Hdg.#gh XYbh'i bgk "YXi "Ui #gdYVJU'!Wcbg]XYfUf]cb

5 WUXYa | W < cbYghmUbX D`U[| Uf]ga

D`U[]Uf]ga `]g`i g]b['h\Y`k cfXg`cf`]XYUg`cZch\Yfg`UbX`dfYgYbh]b['h\Ya `Ug`mci f`ck b"'=hWJb'hU_Y`a Ubm Zcfa gžZfca `XY`]VYfUhY`W\YUh]b['hc`UWW]XYbhU`mWcdm]b['Zfca `U`gci fWY'k]h\ci hUW_bck `YX[Ya Ybh'

 $I BGK `[fci dg'd`U[]Uf]ga `]bhc'h\Y'Zc``ck]b[`WUhY[cf]Yg.$

7 cdm]b[.'i g]b['h\Y'gUa Y'cf'j Yfmg]a]`Uf'k cfXg'hc'h\Y'cf][]bU`hYl h'cf']XYU'k]h\ci h'UW_bck `YX[]b['h\Y gci fW'cf'i g]b['ei chUh]cb'a Uf_g"'H\]g'U`gc'Udd`]Yg'hc']a U[Ygž'Ufh'UbX'XYg][b'dfcYWhgž'Ug'k Y``'Ug dfYgYbhUh]cbg'k\YfY'gca YcbY'dfYgYbhg'Ubch\Yf'g']XYUg'cf'k cfXg'k]h\ci h'WfYX]h'

± Uddfcdf]UhY 'dUfUd\fUg]b[. 'W\Ub[]b['U'ZYk 'k cfXg'UbX'd\fUgYg'k \]'Y 'a cghmfYhU]b]b['h\Y'cf][]bU`ghi Whi fY 'UbX']bZcfa Uh]cb'k]h\ci h'UW_bck 'YX[Ya Ybh''H\]g'U`gc'Udd`]Yg']b'dfYgYbhUh]cbg'k \YfY'gca YcbYdUfUd\fUgYg'Ubch\Yf'g']XYUg'cf'k cfXg'k]h\ci h'WfYX]h'' ± h'U`gc'Udd`]Yg'hc'd]YW]b['hc[Yh\Yf'ei chYg'UbXdUfUd\fUgYg']bhc'U'bYk 'k \c'Yž'k]h\ci h'fYZYfYbW]b['UbX'U'ghi XYbhg'ck b'UbU`mg]g'hc'Vf]b['h\Y'a UhYf]U`hc[Yh\Yf''

7 c``i g]cb. 'k cf_]b['k]h\ 'ch\ Yfg'Vi h'dUgg]b['cZZh\ Y'k cf_'Ug'U'dYfgcb'g']bX]j]Xi U``k cf_"'7 c``i g]cb'U`gc]bWi XYg'dfcj]X]b['mci f'k cf_'hc'Ubch\ Yf'ghi XYbhVYZcfY'h\ Y'Xi Y'XUhYžcf'Zcf'h\ Y'di fdcgY'cZh\ Ya d`U[]Uf]g]b['Uh'Ubmh]a Yž'dUm]b['Ubch\ Yf'dYfgcb'hc'dYfZcfa 'Ub'UWUXYa]WhUg_ž'ghYU`]b['cf'UWei]f]b[Ubch\ Yf'dYfgcb'g' UWUXYa]Wk cf_'UbX'Wcdm]b[']hz'cZYf]b['hc'Wca d`YhY'Ubch\ Yf'dYfgcb'g'k cf_'cf'gYY_]b[dUma YbhZcf'Wca d`Yh]b['UWUXYa]Wk cf_"

±bUddfcdf]UhY`W]hUh]cb.`7]h]b[ˈgci fW/gˈk \]WX`\Uj Y`bchVYYb`fYUXžk]h\ci hUW_bck`YX[]b[ˈh\Y`″gYWcbXUfm″gci fW/Zfca k \]WX`_bck`YX[Y`cZh\Ya`\UgʻVYYb`cVhJ]bYX"

8 i d`]\WJh]cb`ffgY`Zd`U[]Uf]ga "Ł gi Va]hh]b[`mci f`ck b`k cf_ž]b`k \c`Y`cf`]b`dUfhžk \YfY`]h\Ug`dfYj]ci g`m VYYb`dfYdUfYX`cf`gi Va]hhYX`Zcf`Ubch\Yf`UggYgga Ybhcf\Wci fgY`UhI BGK `cf`Ubch\Yf`i b]j Yfg]hm'

7 cffYWhfYZYfYbWJb[dfUWfJWYg/

·····Dufud\fug]b[žgi a a uf]g]b[ž'YggUmk f]h]b['UbX'h]a Y'a ubu[Ya Ybh

·····5ddfcdf]UhY i gY cZUbX Uhff]Vi hjcb Zcf U fUb[Y cZa UhYf]U g jbWi X]b['hYl hž]a U[Ygž Zcfa i `UY UbX WcbWdhg"

±0X]j]Xi U``Ugg]ghUbWr`]g`Uj U]`UV`Y`cb`fYei YghZfca `H\Y`@YUfb]b[`7 YbhY`f<u>\hd.#k k k "`Wi bgk "YXi "Ui #</u>\" Gh XYbhg`UfY`U`gc`fYa]bXYX`h\UhWUfYZ ``ha Ya UbU[Ya Ybh]g`Ub`]a dcfhUbhdUfhcZgh XmUbX`cbY`cZh\Y]XYbh]Z]YX`WUi gYg`cZd`U[]Uf]ga `]g`dccf`h]a Y`a UbU[Ya Ybh'`Gh XYbhg`g\ci `X`U``ck `gi Z]W]Ybh'h]a Y`Zcf fYgYUfW\žXfUZh]b[`UbX`dfcdYf`fYZYfYbW]b[`cZgci fWfg`]b`dfYdUf]b[`U```UggYgga Ybh']hYa g"

I BGK '@]VfUfm'U`gc'\Ug'h\Y'9@G9'hcc``Uj U]`UV`Y'hc'Ugg]ghmci 'k]h\'mci f`ghi Xm'Uhi BGK "'9@G9']g XYg][bYX'hc']bhfcXi WY'bYk 'ghi XYbhg'hc'ghi Xm]b['Uhi BGK 'Vi h]h\Wb'U`gc'VY'U'[fYUhfYZfYg\Yf'Xi f]b['mci f ghi Xm'

7 ca d'Yh]b['h\Y'9@&9'hi hcf]U`'UbX'ei]n'k]``'YbUV'Y'mci 'hc.

- UbU`mgY`hcd]\Mgz'd`Ub`fYgdcbgYg`UbX`cf[Ub]gY`fYgYUf\W\`Zcf`U\WJXYa]\Wk f]hjb[`UbX`ch\Yf UggYgga YbhiHJg_g
- YZZYWNj Y`m'UbX`YZJWJYbh`m'ZJbX`Uddfcdf]UhY`]bZcfa Uhjcb`gci fWrg`UbX`Yj U`i UhY`fY`Yj UbWY`hc`mci f bYYXg

7ci fgY GWXYXi `Y

J]Yk 'WUgg'ha YHUV'Y

H]a YtUV`Y

8UhY	HmdY	7 cbh/bh	
K YY_'%'('8YWYa VYf'! %\$'8YWYa VYf	@YWn fY	@YWi fYgž%\$Ua!%&da"Acb.@]ghYb]b[#9b[U[]b[" Hi Y.GdYU_]b[#]c]W]b["H\i.6Y\Uj]b[#9aVcXm]b[" : f].Ghcfm]b[5ZZYW]b["	
	Hi hcf]U`	K cf_g\cdgž%da!' da 'cf'' da!) da "'A cb. @ghYb]b[#9b[U[]b["'Hi Y. GdYU_]b[#J c]W]b[f]bWi XYg'5ggYgga Ybh'%"%"'H\i 6Y\Uj]b[#9a VcXm]b["': f]. Ghcfm]b[5ZYW]b[f]bWi XYg'5ggYgga Ybh'%&&"'	
	K YV	A cb. DYfgi Ug]j Y 7 ca a i b]WUh]cb — DfYdUf]b[Zcf 5ggYggga Ybh%"%" Hi Y. C fU`]lm— DfcgcXmUbX F \Yhcf]W'K YX. DfYdUf]b[Zcf 5ggYgga Ybh&"%— DfYgYbhUh]cb HYWXb]ei Yg" H\i . 6cXm@Ub[i U[Y— DfYdUf]b[Zcf 5ggYgga Ybh%"&—: f]. GhcfmY`]b[UbX UZZYW]b[— GhcfmYcUfX]b["GUh#Gi b. 8][]hU` gdUW UbX dYfgcbU— DfYdUf]b[Zcf 5ggYgga Ybh' "	
K YY_'&.'%%'8YWYa VYf'! %+'8YVW'a VYf	@YWn fY	@YWifYgz'%\$Ua!%&da"'Acb. AYX]Uh]b[#DfcYW]b["'HiY.'DfYgYbh]b[#FYgdcbX]bf]bWiXYg'5ggYggaYbh''Ł"'	
	Hi hcf]U`	K cf_g\cdgž%da!' da 'cf'' da!) da "' A cb . A YX]Uhjb[#Dfc^YWhjb["'Hi Y. 'DfYgYbhjb[# YgdcbX]b[f]bWi XYgʻ5ggYgga Ybh' Ł"'	

FYgci fWfg

DfYgWf]VYX F Ygci fWYg

 $5```YI\ dYWWYX`fYgci\ fWYg`Zcf`ghi\ XYbhg`UfY`Uj\ U]`UV`Y`h\fci\ [\ \ `A\ ccX`Yž'h\Y`I\ B\ GK\ `@]VfUfmcf`cdYb`UWWYgg\ cb`]bY"$

FYWca a YbXYX FYgci fWYg

H\Y'Zc``ck]b['fYWcaaYbXYX'fYgcifWYg'aUmVY'UjU]`UV`Y'h\fci[\'IBGK'6cc_g\cd"