



MDIA5100

ϰXi ghmi ϰhY fbg\jd

GYa YghYf'Hk c`##`&\$%



GWcc`cZH Y`5ftg`UbX`A`YXJU`##`I`BGK`..5ftg`UbX`GcWJU`GWYbWg

7 ci fgY`Cj Yfj]Yk

`GHUZZ`7 cbhUWh`8YHU]`g`

`7 cbj Ybcfg`

B Ua Y	9a U]`	5j U]`UV]`]m	@cWUhc b	D\cbY
F Ua Ugk Ua] < Uf]bXfUbuUk	f"\Uf]4 i bgk "YXi "Ui	H\i fgXUmg - "" \$!%\$' \$	&&&`F cVYfh K YVghYf	bi ``

GWkcc``7 cbhUWh`bZcfa Uh]cb

F cca " %&ž`Yj Y`` `F cVYfhk YVghYf`6i]X]b[

D\cbY. f\$&Ł`- ' ,) `(,) *

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

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

H\Y`GWkcc``cZhY`5fng`UbX`A YX]U`k ci `X``]_Y`hc`F YgdYWz`m5W_bck`YX[Y`hY`HfUX]h]cbU``7 i gtcX]Ubgž`hY`6YXY[U`fP`Ybg]b[hcb`WUa di gŁž; UX][U`f7]mUbX`5fhi`8Yg][b`7 Ua di gYgŁ`UbX`hY`B [i bbUk U`dYcd`Y`f5i ghU]`Ub`8YzYbW` : cfW`5WUXYa m]b`7 UbVYffUŁcZhY`UbXg`k \YfY`YUW`WUa di g`cZI`BGK`]g`cWUHYX"

5 hYbXUbW`F Yei]fYa Ybhg

5`ghi XYbh]g`YI dYW`X`hc`UhhYbX`U``WUgg`W`bUWh\ci fg`Zcf`U`ZUW`!hc!ZUW`fi &: Łcf`V`YbXYX`WŁi fgY`UbX`WŁa d`YH`U``UW]j`]hYg`Zcf`U`V`YbXYX`cf`Z`mcb`]bY`WŁi fgY"

5`ghi XYbhk \c`Uff]j`Yg`a cfY`h`Ub`%)`a]bi`hYg`U`H`a UmVY`dYbU`]gYX`Zcf`bcb!UhhYbXUbW``Zgi`W`U`dYbU`m`]g`]a dcgYXž`hY`gh`XYbhia`i ghVY`]bZcfa`YX`j`YfVU`m`UhhY`YbX`cZUWgg`UbX`UXj`]gYX`]b`k`f]h]b[`k`]h`]b`&(`\ci fg"

ZU`ghi XYbhYI dYf]YbW`g`]`bYggž`a`]gUXj`Ybh`fY`cf`chYf`cW`ffYbW`h`Uha`U`_Yg`UVgYbW`Zca`U`WUgg#UW]j`]mi`bUj`c]XUV`Yž`cf`YI dYW`g`hc`VY`UVgYbhZca`U`Zc`f`h`WŁa`]b[`WUgg#UW]j`]mž`h`Ymg\ci`X`gYY`_`dYfa`]gg]cb`Zca`hY`7`ci`fgY`5i`h`cf]mž`UbX`k`YfY`Udd`]WUV`Yž`hY`f`fYei`Yghg\ci`X`VY`UVWŁa`dUb]YX`VmUb`cf][`]bU`cf`W`fh]Z]YX`WŁdmcZU`a`YX]W`W`fh]Z]W`h`cf`chYf`Zcfa`cZUddfcdf]U`h`Yj`]XYbW"

5`7`ci`fgY`5i`h`cf]h`ma`UmYI`W`gY`U`gh`XYbhZca`WUggYg`cf`UW]j`]hYg`Zcf`i`d`hc`cbY`a`cbh`"<ck`Yj`Yfž`hY`m`a`UmUgg][`b`UXX]h]cbU`UbX`#f`U`hY`fbU]j`Y`hUg`_g`hc`Ybgi`fY`WŁa`d`]UbW``5`7`ci`fgY`5i`h`cf]m`WŁbg]XYf]b[`hY`[`fUbh]b[`cZUVgYbW`a`i`ghVY`gU]gZ]YX`U`gh`XYbhk`]`g]`VY`UV`Y`hc`a`YYh`hY`WŁi`fgY`g`YUfb]b[`ci`h`WŁa`Yg`UbX`#f`j`ci`a`Y`cZ`YUfb]b[``5`ghi`XYbhgYY_]b[`Uddfcj`U`hc`VY`UVgYbhZcf`a`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`W`fh]Z]YX`gi`ddcf]h]b[`XcW`a`YbhU]cb"

: cf`a`cfY`]bZcfa`Uh]cb`UVci`h`hY`UhhYbXUbW`dfc`hc`WŁg`]b`hY: UW`m`icZ5fng`UbX`GcW]U`GWYbW`g. [\hfdg.#k k k "Ufng"i bgk "YXi "Ui #W ffYbhgh XYbhg#UWUXYa \]W\]bZcfa Uh\]cb#dfc`hc`WŁg!\[i \]XY`\]bYg#](#)

5 WUXYa]W`bZcfa Uh]cb`

: cf`YggYbh]U`gh XYbh]bZcfa Uhcb`fY`Uh]b[`rc. `fYeI Ygrg`Zcf`YI h`bg]cb/fYj]Yk `cZa Uf_g/cVW dUhcbU`\\YU`h
UbX`gUZ`hm/YI Ua]bUhcb`dfcW`Xi fYg/gdYW]U`Wcbg]XYfUhcb`]b`h`Y`Yj YbhcZ]`bYgg`cf`a]gUXj Ybh fY/
gh XYbhYeI]mUbX`X]gUV]`]m`UbX`ch`Yf`YggYbh]U`UWXYa]W]bZcfa Uhcbž
gYY`[\hdg.#k.k"Ufng"i bkg "YXi "Ui #W ffYbhgh XYbng#UWXYa \]W\]bZcfa Uhcb#dfcfcW`g!\[i \]XY`\]bYg#](#)

7 ci fgY'8YHJ`g

7 fYX]hDc]bhtg`*`

Gi a a UfmicZH\Y'7 ci fgY

H\]g`Wci fgY'dfcj]XYg'mci `k]h`Ub`cddcfh b]hmi`c`i bXYftU_Y`k`cf_]b]hY[fUHXY`YUfb]b[`UbX`[U]b`]bXi g]fm
YI dYf]YbW`k]h`U`cg]hcf[Ub]gU]cb`WcgY`mfY`UHXY`hc`mci f`A Ug]f]g`dfc[fUa "

5 h\Y`YbX`cZH\Y`]b]hYfbg\]d`mci `k]`dfcj]XY`U`gi a a U]j`Y`fYdcfhcZmci f`YI dYf]YbW`g`UbX`k`cf_]YI Ua d`Yg
Wc`a d`YHXY`Xi f]b[`h\Y`]b]hYfbg\]d`"

H\Y`]b]hYfbg\]d`fYei]fYg`U`hc]U`Wc`a a]h`a`YbhcZ%\$!%) \$`lci fg`cZk`cf_]k]h`U`cg]hcf[Ub]gU]cb`UbX`a Um
bcfa U`mVY`hU`Yb`]b`Z]fghcf]gYWc`bX`gYa`YghYf`" `b]hYfbg\]d`cddcfh b]h]Yg`UfY`UXj`Yfh]gYX`j]U`h\Y`G`W`cc`cZ
h\Y`5`f]g`UbX`A`YX]U`" `b]hYfbg\]d`B`Yk`g`Y`hYf`"5`hYfbU]j`Y`mimci `a`UmUddfcUW`U`fY`Yj`Ubhc]f[Ub]gU]cb`hc
Udd`mZc`f`Ub`]b]hYfbg\]d`"D]f]cf`hc`gYY_]b[`Ub`]b]hYfbg\]d`z`mci `g`lci `X`U`hYbX`Ub`]b]hYfbg\]d`]bZc`fa`U]cb
gYgg]cb`fi`b`Vmih\Y`G`W`cc`cZ`h\Y`5`f]g`UbX`A`YX]U`"

9 bfc`a`Ybh]g`VmUddfcj U`cZH\Y`G`W`cc`z`Wc`bX`]h]cbU`cb`Uddfcj U`cZUb`]b]hYfbg\]d`d`UW`a`YbhUbX`a`YY]b[
h\Y`Y`][]V`]hmfYei]fYa`Ybhtg`UVcj`Y`"

5 h\Y`Wc`bWi`g]cb`cZH]g`Wc`i fgY`h\Y`gh`XYbhk]`VY`UV`Y`hc

%` \Uj`Y`[U]bYX`YI dYf]YbW`cZ]bXi g]fmdfcW`ggYg`UbX`dfUW]W`g
&` Udd`mih`YcfY]W`Wc`bW`d]g`UbX`dfUW]W`g_]`g`[U]bYX`]b`h\Y`dfc[fUa `hc`fYU`!k`cfX`Wc`b]hY]g
'`" \Uj`Y`Yb`UbW`X`h\Y]f`W]dUW]mZc`f]bXYdYbXYbhYb[U[Ya`Ybhk]h`]bXi g]fmdfcj]XYfg

HYUW]b[`G]fUH`[]Yg`

H\]g`Wci fgY`Ug`bc`Zc`fa`U`hYUW]b[`Wc`a`dcbYbh`"

5ggYgga Ybh

5ggYgga YbhHUg_g`

5ggYgga YbhHUg_	K Y][\h	8i Y'8UH	Gh XYbh@YUfb]b[Ci hWta Yg'5ggYggYX
7 f]h]WU`F YZYW]cb`) \$i	&*`C WtcVYF`&\$%	%z&
K cf_`9j]XYbW`) \$i	&*`C WtcVYF`&\$%	%z

5ggYgga Ybh8YHU]`g

5ggYgga Ybh%`7 f]h]WU`F YZYW]cb

GHUfhXUH.`

8YHU]`g. Gh XYbtrg`k]`gi Va]hU`W]h]WU`F YZYW]cb`k \]Wk f]L`Vf]YZmiXYgW]VYg`hY`hmdY`cZa YX]U`cf[Ub]nUh]cb
 hYmk YfY`d`UW`X`]b`f]b`[YbYfU`hYfa`g`cb`nzk]h`ci`hbUa`]b[L`UbX`h`Y]f`fc`Y`k]h]b`]h`f]L`]XYbh]ZYg`U
 fY`Yj Ubhfc`Y`]b`h`Y`cf[Ub]nUh]cb`Uh`cf`WcgY`h`c`Yb`fm`Yj`Y`UbX`h`Y`g`]`g`UbX`Uh]f]Vi`h`g`b`Y`Y`X`X`h`c`W`ta`d`Y`h`
 gi`W`U`fc`Y`/`f]]L`U`X`X`f`Y`g`g`Y`g`ck`h`Y`h`md`Y`c`Z`k`c`f`h`Y`m`l`U`j`Y`i`b`X`Y`f`h`U`_`Y`b`#`d`f`c`X`i`W`X`X`i`f]b[`h`Y]f`d`U`W`a`Y`b`
 W`c`b]f]Vi`h`g`h`c`h`Y]f`c`g`h`c`f[Ub]nUh]cb`UbX`#`c`f`Y`Yj`Ubha`YX]U`]bXi`g]f]m`#`b`h`]g`U`gh`W`ta`d`cb`Y`b`h`g`h`XY`b`trg`

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

Gh XYbng`UfY`YI dYW`X`hc`di h`h`Y]f`bUa Yg`UbX`gh XYbhbi a VYfg`cb`Yj YfmdU[Y`cZ`h`Y]f`Ugg][ba Ybng"

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

- K cf_`gi Va]hYX`%\$`hc`%-`XUmg`UZhYf`h`Y`gh]di`UH`X`XYUX`]bY`k`]`VY`UggYggYX`UbX`ZYXVUW`dfcj`]XYX`Vi`hU`a`Uf`_`cZnYfc`k`]`VY`fYW`fYX`"Z`h`Y`k`cf`_`k`ci`X`Uj`Y`fYW`]YX`U`dUgg`a`Uf`_`Vi`hZcf`h`Y`UH`bYgg`UbX`h`Y`k`cf`_`g`U`W`a`di`gcfm`W`i`fgY`W`a`dcbYbh`f`i`fX`Y`fYei`]fYa`YbhZ`U`gh`XYbhk`]`VY`XYYa`YX`hc`Uj`Y`a`Yh`h`UhfYei`]fYa`Ybh`
- K cf_`gi Va]hYX`&\$`cf`a`cfY`XUmg`UZhYf`h`Y`gh]di`UH`X`XYUX`]bY`k`]`bchVY`UWW`d`h`X`Zcf`UggYgga`Ybh`UbX`k`]`fYW`]Y`bc`ZYXVUW`za`Uf`_`cf`[`fUXY`"Z`h`Y`UggYgga`Ybh`Ug`_`]g`U`W`a`di`gcfm`W`a`dcbYbh`c`Z`h`Y`W`i`fgY`U`gh`XYbhk`]`fYW`]Y`Ub`l`bgUhg`Z`U`W`c`fm`:`U`]`fl`:`k`[`fUXY`Ug`U`fYgi`hc`Z`i`bgUhg`Z`U`W`c`fmdYfZ`fa`UbW`]b`Ub`YggYbh]U`W`a`dcbYbh`c`Z`h`Y`W`i`fgY`"

H\]g`]bZ`fa`U`h`cb`]g`U`gc`Uj`U]UV`Y`Uh`

[\h`dg`##k`k`k`"Ufng`i`bgk`"YXi`"Ui`#W`ffYbh`gh`XYbhg`#JW`X`Ya`\]W`\]bZ`fa`U`h`cb`#d`f`ch`W`c`g`\[`i`\]X`Y`\]bYg`#`](#)

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

Mci`W`b`Udd`m`Zcf`gdYW]U`W`cbg]XYfU]cb`k`Y`b`]`bYgg`cf`ch`Yf`W]fW`a`gh`Ub`W`g`]b`h`f`Z`f`Y`k`]h`m`ci`f`UggYgga`Ybh`d`YfZ`fa`UbW`"

G]W`bYgg`za`]g`U`X`j`Y`bh`f`Y`cf`ch`Yf`W]fW`a`gh`Ub`W`g`V`Y`nc`b`X`m`ci`f`W`c`b`f`c`a`Um`

f`D`f`Y`j`Y`bh`m`ci`Z`f`ca`W`a`d`Y`h`b`[`U`W`i`fgY`f`Yei`]f`Ya`Y`bh`z`

f`?`Y`Y`d`m`ci`Z`f`ca`U`h`Y`b`X`]b`[`U`b`UggYgg`U`V`Y`U`W`h`j`]m`z`

f`G`h`c`d`m`ci`g`i`Va`]h`]b`[`UggYgg`U`V`Y`k`cf`_`Zcf`U`W`i`fgY`z`

f`G`[`b`]W`b`h`m`U`Z`Y`W`h`m`ci`f`d`Y`f`Z`fa`UbW`]b`UggYgg`U`V`Y`k`cf`_`z`V`Y`]h`U`Z`fa`U`Y`b`X`!`c`Z`g`Ya`Y`gh`f`Y`I`Ua`]b`U`h`c`b`z`U`W`Ugg`h`Y`g`h`z`U`U`V`c`f`U`h`c`f`m`h`Y`g`h`z`U`g`Ya`]b`U`f`d`f`Y`g`Y`b`h`U`h`c`b`c`f`U`b`m`c`h`Y`f`Z`fa`c`Z`UggYgga`Y`bh`

:`cf`Z`f`h`Y`f`X`Y`h`U`]g`]b`f`Y`U`h`c`b`hc`GdYW]U`7`cbg]XYfU]cb`]b`W`i`X`]b`[`"K`Y`b`hc`5`dd`m`z`"<`ck`hc`5`dd`m`UbX`"Gi`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`hc`h`Y`GdYW]U`7`cbg]XYfU]cb`k`Y`V`g`h`Y`."

[\h`dg`##gh`XYbh`i`bgk`"YXi`"Ui`#gdYW\]U`W`cbg\]XYfU\]cb`](#)

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" `hWUb`hU`Y`a Ubm
Zcfa gZ`Zca `XY`]VYfUHY`WXYU]b[`hc`UWV]XYbhU`mW`dm]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.

7 cdm]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 YcbY`dfYgYbh]g`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hW`YX]h`

hUddfcdf]UHY`dUfUd`fUg]b[.`7`Ub[]b[`U`ZYk `k cfXg`UbX`d`fUgYg`k \]Y`a cghmifYU]b]b[`hY`cf][]bU`
ghfi W`i fY`UbX`#f`dfc[fYgg]cb`cZ]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`k \YfY`gca YcbY`dUfUd`fUgYg`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hW`YX]h`UbX`hc
d]YW]b[`hc[YhYf`ei chYg`UbX`dUfUd`fUgYg`]bhc`U`bYk `k \c`Yz`k]h`ci hUddfcdf]UHY`fYZYfYbW]b["

7 c`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_"`7 c`i g]cb`U`gc

F Ygci fWg

DfYgWf]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

Øf]YZmci h]bY`\ck`gh XYbhZYXVUW`fVch`Zcfa U`UbX`]bZcfa U`E`cb`hY`Wci fgY`k]`VY`[U`hYfYXž\ck`]h
k]`VY`UbU`mgYX`UbX`\ck`]hk]`VY`UWYX`i dcb`hc`]a dfcj Y`hY`gh XYbh`YUfb]b[`Yl dYf]YbW`": cf`Yl Ua d`Yž
mci `a][\`hX]gW gg`k \Uhk Ug`]XYbh]ZYX`]b`dUghZYXVUW`UbX`\ck`h]g`Wci fgY`k Ug`WU`Ub[YX`hc`UXXfYgg`hY
]ggi Y`Q

⇒ U[Y`7 fYX]h

6cX]Yg/``bhfZUWg`&\$%*

7F ⇒ CG

7F ⇒ CG`Dfcj]XYf`7cXY.`\$\$-\$` ;