

EDST5126

=ggi Ygʻ]bʻ<][\Yfʻ9Xi WUh]cb. Di fdcgYžFc`YʻUbX Cf[Ub]gUh]cb

GYa YghYf'C bY''##'&\$%

7ci fgY'Cj Yfj]Yk

GhJZZ7cbhJWh8YhJ]`g`

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`] m	@cWUh]cb	D∖cbY
GHYd\Yb'A Ufg\U``		UVcj Y Ya U]`	@Yj Y``C bYž	Ž*%'&'-',) ,(&&
		UXXfYgg hc UffUb[Y Uddc]bha Ybhg hc a YYhhc X]gW gg	>c\b';	
		mci f'k cf_"		

GWXcc~7cbhJWh~abZcfa Uhlcb

GW.cc``cZ9Xi WUh]cb 5fhg`UbX`GcWJU``GWJYbWYg

@YjY``%ž'>c\b'; ccXgY```6i]`X]b['fl&\$Ł

H. Ž*%f&Ł'-',) %++

9. YXi WUNcb4 i bgk "YXi "Ui

K . YXi WUhjcb"Ufhqi bgk "YXi "Ui

5 hyb XUb WY F Yei]fYa Ybhg

5XX]hcbu`GW.cc`cZ9XiWUhcb'UhYbXUbW'fYei]fYaYbhq

#i]gYI dYWYX h\ UhiUbmighi XYbhiYbfc``YX`]b`Ub`98GH`Wci fgY`k]h\ h\Y`GW\cc``cZ9Xi WUh]cb`k]```a U_Y`U Wca a]ha Ybhihc h\Y]f``YUfb]b['UbX`UhiYbX`U```WUggYg`]b`Z ```k \YfY`WcbhYbhi]g`XY`]j YfYX`]b`U`ZUW!hc!ZUW a cXY YI Wdh]b`WffU]b`WffW a ghUbWg`k \YfY`UVgYbW`]g`Xi Y`hc`]``bYggža]gUXj Ybhi fY`cf`i bZcfYgYYb WffW a ghUbWg`VYmcbX`h\Y`ghi XYbhg`Wcbhfc`"`5 a]b]a i a `UhhYbXUbW'fYei]fYa YbhcZ, \$i `]g`fYei]fYX`Zcf YUW\`Wci fgY"``\#o`WffU]b`WfW a ghUbW'gž'U`ghi XYbha Uma]gg`i d`hc`&\$i `cZU`Wci fgY`k]h\ci hZcfa U`Udd`]WUh]cb`UbX`i d`hc`'' i `cZU`Wci fgY`k]h\`Zcfa U``XcW a YbhUh]cb`fgYbhj]U`Ya U]``hc`Wci fgY`Wcbj Ybcft dfcj]X]b[`U```h\Y`fYei]fYa Ybhg`XYhU]`YX`VY`ck `UfY`a Yh'``Ghi XYbhg`bcha YYh]b[`h\Y`UhhYbXUbW'fYei]fYa Ybhg`ci h]bYX`UVcj Y`k]```VY`Uk UfXYX`Ub`I bgUh]gZUWcfm: U]``fI : Ł'Zcf'h\UhWci fgY`fY[UfX`Ygg`cZ h\Y]f`dYfZcfa UbW']b`h\Y`UggYgga YbhhUg_g`cf'ch\Yf`fYei]fYa Ybhg`Zcf'h\Y`Wci fgY''

: cfiZ fh\Yfi]bZcfa Uh]cbicbi9Xi WUh]cbiWci fgYiUthYbXUbWYifYei]fYa YbhgžidiYUgYifYZYfihcih\YifYgdYWf]j Y 98GHiA ccXiYia cXi `YfgŁ"

5 WUXYa 1W = DZcfa Uhlcb.

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

: cf`YggYbh]U``ghi XYbh`]bZcfa Uh]cb`fY`Uh]b[`hc.`fYei Yghg`Zcf`Yl hYbg]cb/fYj]Yk `cZa Uf_g/cWW dUh]cbU``\YU`h\UbX`gUZ/hm'Yl Ua]bUh]cb`dfcWXi fYg/gdYW]U``Wcbg]XYfUh]cb`]b`h\Y`Yj YbhcZ]``bYgg`cf`a]gUXj Ybhi fY/ghi XYbh`Yei]hm'UbX`X]gUV]`]hm'UbX`ch\Yf`YggYbh]U``UWUXYa]W]bZcfa Uh]cbž qYY`\hdg.#k k k "Ufhq"i bak "YXi "Ui #W ffYbhqhi XYbhq#UWUXYa]W]bZcfa Uh]cb#dfchcWc`a![i]XY`]bYq#

7ci fgY 8YW] g

7 fYX]hDc]bhg *

Gi a a UfmcZh\Y 7ci fgY

±) 'h\]g'Wci fgY'mci ']XYbh]Zm'WcbhYa dcfUfm]ggi Yg'fY`UhYX'hc'UbX']a dUW]b['cb'\][\Yf'YXi WUh]cbz']bWi X]b[h\Y'di fdcgYz'fc`Y'UbX'ghfi Wi fY'cZ]bgh]hi h]cbg"'Mci 'YI Ua]bY'W ffYbhfYgYUfW\'UbX'dfUW]W'cb'`YUfb]b[UbX'hYUW\]b[z'YXi WUh]cbU``XYg][bz

UggYgga YbhžZYYXVUW_'UbX'Yj U'i Uhjcb'UbX'h\Y'ghfi WhifY'cZ'UWUXYa]Wk cf_']b'\][\Yf'YXi WUhjcb'UbX'h\Y W\Ub[]b['fc'Y

\][\YfYXi WUh]cb d`UmgžZcfYl Ua d`Yž]b hYfa g`cZgh XYbhgžh\Y`Wca a i b]mmUbX`Ya d`cmYfg"

5 hith Y WcbWi g]cb cZth]g Wci fgY th Y ghi XYbhik]``VY UV Y the

- %" ⇒ YbhjZm_Ymjggi Ygʻ]a dUWjb[ˈcbˈmci fˈcf[Ub]gUhjcbˈfcfˈUbˈcf[Ub]gUhjcbˈcZmci fˈWkc]\W'Łk]h\fYZYfYbW\ncfYv\bh\][\Yf'YXi WbhchfygYUfW\'UbX'dfUWj\W'`]hYfUhi fY
- &" 8 Yj Y`cd`d`Ubg`UbX`ghfUhY[]Yg`hc`UXXfYgg`]ggi Yg`]XYbh]Z[YX`]b`mci f`gY`YWhYX`\][\Yf`YXi WUh]cb WcbhYl h

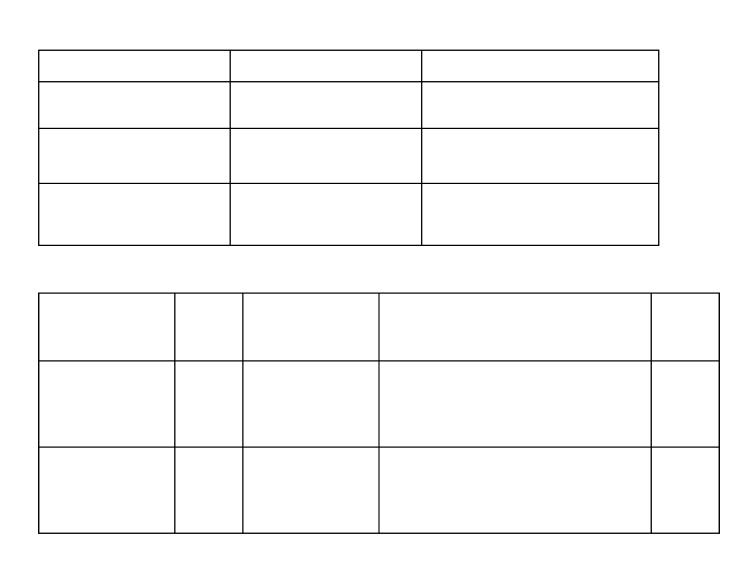
HYUW]b[GhfUhY[]Ya

HYUW]b[ghfuh / [] Yg.

H\]g`WcifgY`k]``YbUV`Y`ghiXYbhg`hc`]XYbhjZm]ggiYg`]b`\][\Yf`YXiWUhjcb`h\Uhk]``Yb\UbWY`h\Y]f`dfUWjWY`Ug`YUXYfg`cZYXiWUhjcbU``cf[Ub]gUhjcbg"`H\Y`WcifgY`]g`VUgYX`cb`%&'I`&`\cifg`ZJWY!hc!ZJWY`gYgg]cbg`adYei];U`Ybhz`k]h\`cbY`cZh\YgY`%&`gYgg]cbg`WcbXiWYX`UgmbW\fcbcig`mcb`]bY"`

H\YfY'k]```VY`Ub`cddcfhi b]hmhc`Wc``UVcfUhY'k]h\`dYYfg`]b`ga U```[fci d`X]gW gg]cbgžUbU`mmY`WcbhYbhUbX fYZYWhcb'j Uf]YX`dYfgdYWhj Yg`UbX`dcg]h]cbg"`Ghi XYbh`YUfb]b[`k]```U`gc`VY`ZcW gYX'h\fci [\`Ub Yb[U[Ya Ybhk]h\`_YmfYUX]b[g`UbX`W ffYbhdfUWhWg'UbX'k f]h]b[`]bX]j]Xi U``YggUmg`cf`Yei]j U`Ybhž'Ug`k Y``Ug`Wca d`Yh]b[`U`gYf]Yg`cZ]b!WUgg`UbX`cb`]bY`dfYgYbhUh]cbgž'UWhj]h]Yg`UbX`hUg_g"

FUNcbU'Y.



5ggYgga Ybh% K YY_`mhUg_g

GhUfhXUhY. Bch5dd`]WUV`Y

8YHJ]`g. 'HUg_'%! 'K YY_`miHUg_g'! '' \$\$\$`k cfXgGhi XYbhg`k]```fYWY]j Y`k f]hhYb`ZYYXVUW_'k]h\]b`h\fYY`k YY_g`cZ gi Va]gg]cb"

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

9 UWX 'k YY_'mci 'k]``'VY'gYhzj]U'h\Y'Wci fgY'g'A ccX`Y'g]hYz`Ub']bX]j]Xi U``UbX#cf'[fci d'@YUfb]b['5 Wfj]]hmih\Uh fY`UhYg'hc'h\Uhik YY_'g'hcd]WfgŁcZ]bhYfYgh''H\Y'ci hWca Yg'cZh\YgY'k YY_`m@YUfb]b['5 Wfj]]h]Yg'g\ci `X`VY py hay a gan a UjbhU]b''UbX''UXX'hc'h\fci [\ci hih\Y'Wci fgY'''' bh hay a gan a UjbhU]b''UbX''UXX'hc'h\fci [\ci hih\Y'Wci fgY''''

8 YHJ]`gʻcbʻh\YʻbUhi fYʻUbXʻghfi Whi fYʻcZh\Yʻ'Y"DcfhZc`]cʻfYei]fYXʻhcʻa YYhih\YʻfYei]fYa YbhgʻcZh\]g UggYgga YbhHUg_`UfYʻdfcj]XYX`]bʻA ccX`Y"

Gi Va]gg]cb'bchYg. H\Y'Xi Y'XUhY'Zcf'gi Va]gg]cb'cZ5ggYgga Ybh'HUg_'%dYfhU]bg'hc'h\Y'XUhY'cb'cf'VYZcfY k\]W\'mci 'a i gh'gi Va]hmci f'Wca d'YhYX'Y"DcfhZc`]cUbY'i Wfi f Wca fY'U\Y'fYei]fYa YbhY'ZgY'k

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

 $Gh\ XYbhg\ UfY\ YI\ dYWMYX\ hc\ di\ hih\ Y]f\ bUa\ Yg\ UbX\ gh\ XYbhbi\ a\ VYfg\ cb\ Yj\ YfmdU[\ Y\ cZh\ Y]f\ Ugg][\ ba\ Ybhg\ bug\ Ybhg\ bug\ Yhhg\ Yhhg\ bug\ Yhhg\ Yhhg\ bug\ Yhhg\ bug\ Yhhg\ bug\ Yhhg\ bug\ Yhhg\ bug\ Yhhg\ Yhhg\ bug\ Yhhg\ Yhhg\$

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

Zmci 'YbWci bhYf'U'dfcV'Ya 'k \Yb'UhhYa dh]b['hc'gi Va]hmci f'Ugg][ba Ybhh\fci [\'Hi fb]h]bžd'YUgY hY'Yd\cbY'9| hYfbU''Gi ddcfhcb'-',)'''' %cf'Ya U]''h\Ya 'cb'<u>Yl hYfbU'hY`hgi ddcfh4 i bgk "YXi "Ui</u>"'Gi ddcfh 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'

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'

IBGK [fcidgdu[]Uf]ga]bhch\yzc``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'

#JUddfcdf]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''#iU`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`YhJb['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`\Ug'VYYb`cVhU]bYX"

8 i d`]\WUh]cb`ff`gY`Zld`U[]\Uf]ga "Ł`gi Va]\h]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]\hYX`Zcf`Ubch\Yf`UqqYqqa Ybhcf\Wci fgY`UhI_BGK_`cf`Ubch\Yf`i b]\Yfq]\m"

7 cffYWhfYZYfYbWb[dfUWhWyg.

• Dufud\fug]b[žgi a a Uf]g]b[žYggUmk f]h]b["UbX"h]a Y a UbU[Ya Ybh

•

- VYMYfa UbU[Y'mci f'h]a Y
- i bXYfgHJbX'mci f'f][\hg'UbX'fYgdcbg]V]`]h]Yg'Ug'U'ghi XYbh'Uhi BGK
 VY'Uk UfY'cZd`U[]Uf]ga ž'Wcdmf][\hž'I BGK 'Ghi XYbh'7cXY'cZ7cbXi Wh'UbX'5WWYdhJV`Y'I gY'cZ I BGK '= H'F Ygci fWfg'Dc`]Wh

F Ygci fWyg

DfYgWf]VYX F Ygci fWYg

 $\label{eq:continuity} 5g'h\]g'WcifgY']g'hUi[\h']b'U'V'YbXYX'a cXYž'YUW\']bX]j]Xi U'ghi XYbh]g'Uggi a YX'hc'\Uj Y'UWW'gg'hc'U Wca di hYf'k]h\ 'U'fY']UV'Y'VfcUXVUbX'WcbbYWf]cb'h\ UhWUb'YZZJWJYbhmUbX'YZZYWfj Y'mUWW'gg'UbX']bhYfUWh k]h\ 'I BGK fg'A ccX'Y'@YUfb]b['A UbU[Ya YbhGmghYa"$

FYWca a YbXYX FYgci fW/g

%" A ccX`Y'G]hY

98GH') %* '=ggi Yg']b'<][\Yf'9Xi WUh]cb'\Ug'Ub'cb!`]bY'dfYgYbW'k]h\]b'A ccX`Y'k\YfY'mci 'WUb'Z]bX.

- %"]bZcfa Uh]cb WcbWfb]b['h\Y'ghfi Wh fY'UbX'dfcWfggYg'cZh\Y'Wci fgY'f]bWi X]b['Z fh\Yf']bZcfa Uh]cb UVci h'UggYgga Ybh'hUg_gŁ
- &"@YUfb]b[AcXiYqZcfYUWXcZh\Yhcd]Wq]bWiXYX]bh\Y7cifqYGWXYXiY
- '" hcc`g`h\Uhmci `WUb`i gY`Zcf`]bXYdYbXYbhfYgYUfW\žWc``UVcfUh]cbž'UbX`g\Uf]b[`cZ`]bZcfa Uh]cb"

Mci 'g\ci `X'Ybgi fY'h\Uh'mci 'UfY'U'fY[i `Uf'j]g]hcf'hc'UbX'i gYf'cZ'h\]g'g]hY'Ug']hk]``'VY'h\Y'df]bW]dU` a YUbg'Vmk\]W\'h\Y'7ci fgY'7cbj Ybcf'k]``'Wca a i b]WUhY']bZcfa Uh]cb'UbX'dfcj]XY'ZYYXVUW_hc mci 'UbX'mci f'Wc``YU[i Yg"''

: i fh\Yf'FYUX]b[q

 $\pm 0.1000 \times 10^{-1} \text{cb.h.Y.fYUX]b[g.]bWi XYX.k]h.]b.YUW.k YY_'g.@YUfb]b[.5Wfj]h]Ygžmci ~a~UmZ]bX.h.Y.Zc.``ck]b[fYUX]b[g.`Y`dZ.``]b.'mci f`ghi X]Yg"$

5bXYfgcbž; "'f&\$\$*L"'5ggi f]b['ei U`]mm#Yg]gh]b['ei U`]mm'Uggi fUbWY. '5WUXYa]Wg' fYgdcbgYg'hc''ei U`]mm']b gca Y'5i ghfU`]Ub'i b]j Yfg]h]Yg"'CgS{fk [: [YZWd7VgUSf[a` + #\$f&\Z'%*%-%+' "

 $6][[g\ddot{z}>"\ddot{z}/"HUb[\ddot{z}7""f\&\$\%""HYUWX]b['Zcf'EiU']lmi@YUfb]b[""f($^h.YX"L""6iW]b[\Ua~\ddot{z}1?."GF<9"UbXCdYb'Ib][Yfq]lmiDfYqq"$

6 cmgž'>"'f&\$%(Ł"'4g[V[`Y 4 WffWdG` [hWde[f]We, E fdSfWY [Weł E bSUWeł F WUZ` a 'aY [We"'BYK 'Mcf_. 'F ci hYX[Y"

7\ifWX]``ž'8"ž?]b[ž'Až/`:clž'6"'f&\$% t"'@YUfb]b[`XYg][b'Zcf'gW]YbWY'YXi WUh]cb']b'h\Y'&%gh\Wbhifm'' <agd S^aXfZW;`ef[fgfW\ad7\gUSf[a`S^D\\e\Wsd\Z\&'\f\text{\$(!(&\%'')}

: `ccXžF"@"'f&\$\$-Ł"DWfZ[`][`YfZW8[XfZ 6[eU[b1] W, >WSd[`Yi [fZ[` fZWg`]` ai STW"@cbXcb.Fci hYX[Y"

; Uff]gcbž'8 "F "ž'? Ubi _Už'< "'f&\$\$(\t''6`YbXYX``YUfb]b[.'I bWcj Yf]b[']\rg'\rfUbgZcfa Uhjj Y'dchYbhjU``]b^\][\YfYXi \WUhjcbž'FZW;`f\Wd \WfS`V: [\YZ\Wd 7\Vg\USf[a`\f\) f\&\t\z'-)!\%\$) "

%"``Ug`U``YUfbYf`]b`h\]g`Wti fgYž

 $\& "``cZh\Y`hYUW\]b[~`]b`h\]g`Wci fgYž$

' "'cZh\Y'XYg][b'cZh\]g'Wci fgYž

("''cZh\Y'fYgci fWyg'fA ccX`Y'g]hYž'fYUX]b[g'YhWUggcW]UhYX'k]h\'h\Y'Wti fgY"

K \YfY'dcgg]V`Yž'hc`UXXfYgg`Ubm`WcbWYfbg`h\Uha Um`Uf]gYž'W\Ub[Yg`k]```VY`a UXY`hc`h\Y`Wci fgY`Ug`]hi]g i bZc`X]b["``K \YfY`W\Ub[Yg`WJbbch'VY`a UXY`]a a YX]UhY`mž'ghi XYbhg`k]```VY`]bZcfa YX`VYZcfY`h\Y`YbX`cZh\Y Wci fgY`\ck 'h\Y]f`` hc`X Ub] Y`b] 'HJbmicf`WcbWk UbmX 'bhg`("`