

6Ygi WX`XYg`@]hh`Y`6`i`Y`@U_Y`]b HUga Ub]Yb

9]bY`?i`fnUb`Y]hi`b[`Z0f`XYb`6Ygi`WX`j`cb`@]hh`Y`6`i`Y`@U_Y`
HUga`Ub]Yb`"9]b`Yd]gWX`Yf`6cl`Ybghcddz`i`a`:`chcg`ni`a`UWX`Yb`
i`bX`X]Y`Uei`Uh]gWX`Yb`,`VYffYghY`j`cb`HUga`Ub]Ybg`U`i`j`]U`Yf`
J`Yf[`Ub[`Yb`Y]h`XYg`N]bb`UVVUi`g`ni`VYk`i`bXYfb`"@]hh`Y`6`i`Y`
@U_Y`Yb`hk`]W_Y`h`g]WX`g`WX`bY`ni`Y]b`Ya`VY`]YV`hYb`
6cl`Ybghcdd`VY`]HUgg]Y!F`cUXhf]dg`"8`Ug`]Y[`h`XUfUb`z`XUgg`XYf`
@]hh`Y`6`i`Y`@U_Y`Ui`Z`XYf`GhfU`»`Y`]b`F]WX`hi`b[`C`gh_0ghY`i`bX`
A`ci`bh`K`]`]Ua`B`Uh]cb`U`Duf`_`Y]WX`h`ni`YffY]WX`Yb`]gh`K`]f`
`UhhYb`:`chcg`XYg`GY`Yg`cb`]bY`[`YgY`Yb`i`bX`k`UfYb`
0VYfnYi`[`h`z`XUgg`k`]f`]b`gY`Yb`a`i`gghYb`"Ni`a`:`0W`_`Ua`Yb`
k`]f`Zf0`\\`]Yf`Yf`i`bX`\\UhhYb`XYb`D`Uhn`[`Ubn`Z0f`i`bg`U`Y]bY`"
U`h1`/`Ua`d`/` ,`&&\$`/H5GA`5B`9B`
@`:`H5I`:`B`5`<`A`9`/`Ua`d`/` ,`&&\$`//`[`h`/
U`h1`/`Ua`d`/` ,`&&\$`/?`@9`B`9F`6`@5I`9F`G99`
H5GA`5B`9B`/`Ua`d`/` ,`&&\$`//`[`h`/U`h1`/`Ua`d`/` ,`&&\$`/?`@9`B`9F`
/`Ua`d`^`Y`]d`/`

9]bY`?i`fnUb`Y]hi`b[`Z0f`XYb`6Ygi`WX`j`cb`@]hh`Y`6`i`Y`@U_Y`
HUga`Ub]Yb`"9]b`Yd]gWX`Yf`6cl`Ybghcddz`i`a`:`chcg`ni`a`UWX`Yb`i`bX`
X]Y`Uei`Uh]gWX`Yb`,`VYffYghY`j`cb`HUga`Ub]Ybg`U`i`j`]U`Yf`
J`Yf[`Ub[`Yb`Y]h`XYg`N]bb`UVVUi`g`ni`VYk`i`bXYfb`"

@]hh`Y`6`i`Y`@U_Y`Yb`hk`]W_Y`h`g]WX`g`WX`bY`ni`Y]b`Ya`VY`]YV`hYb`
6cl`Ybghcdd`VY`]HUgg]Y!F`cUXhf]dg`"8`Ug`]Y[`h`XUfUb`z`XUgg`XYf`@]hh`Y`
6`i`Y`@U_Y`Ui`Z`XYf`GhfU`»`Y`]b`F]WX`hi`b[`C`gh_0ghY`i`bX`A`ci`bh`
K`]`]Ua`B`Uh]cb`U`Duf`_`Y]WX`h`ni`YffY]WX`Yb`]gh`"

K`]f`\\UhhYb`:`chcg`XYg`GY`Yg`cb`]bY`[`YgY`Yb`i`bX`k`UfYb`0VYfnYi`[`h`z`
XUgg`k`]f`]b`gY`Yb`a`i`gghYb`"Ni`a`:`0W`_`Ua`Yb`k`]f`Zf0`\\`]Yf`Yf`
i`bX`\\UhhYb`XYb`D`Uhn`[`Ubn`Z0f`i`bg`U`Y]bY`"

- 'U`h1 H5GA 5B ⇒B `@ : H5I : B 5<A 9 2
- 'U`h1 ?@9-B 9F `6@5I 9F `G99`H5GA 5B ⇒B 2
- 'U`h1 ?@9-B 9F `6@5I 9F `G99`H5G 2

K c ``]Y[h`XYf`@]hh`Y`6`i`Y`@U`_`Y`]b`HUga Ub]Yb 3`

@]hh`Y`6`i`Y`@U`_`Y``]Y[h`]b`XYf`FY[]cb`Gci h\`A ci bh`7Ua Yfcb nk]gW\Yb` ; `UXghcbY`i bX`8YfVm]a `BcfXcghYb`HUga Ub]Ybg"

8]YgYf`hc``Y`_`Y]bY`Cfh`VYZ]bXYh]g]W\`bYVYb`gY]bYa `[f0»YfYb 6fi XYfž`XYf`Y]bYb`YVYbgc`Y]bXYi h][Yb`BUa Yb`\Uh`6`Ui Yf`GYY" 8Yf`@]hh`Y`6`i`Y`@U`_`Y`]gh`YXcW\`k c\`` V`Ui Yf`i bX`XU\Yf`a Y]bYf A Y]bi b[`bUW\`Y\Yf`Y]bYb` : chcghcdd`k Yfh"

I bhYb`\UVY`]W\`X]Y`[YbUi Y`Dcg]h]cb`XYg`@]hh`Y`6`i`Y`@U`_`Y`ZYgh[Y\U`hYbž`XUa]h`G]Y`]\b``Y]W\hYf`Z]bXYb`_`0bbYb"

K]Y`_`ca a Y`]W\` \]Yf` \]b

8Yf`DUF_d`Uhn`@]hh`Y`6`i`Y`@U`_`Y`]gh`Y]W\h`ini [Åb[``]W\ž`bi f`&\$`A YhYf j cb`XYf`Ugd\U`h]YfhYb` ; `UXghcbY`F cUX`f6, &L`YbhZYfbh`8Yf DUF_d`Uhn`ni a `5i gg]W\hgd`i b`_`h]gh`YXcW\`b]W\h`j Yfg]Y[Y`hž`k]fX UVYf`j cb`YXYa `&K 8! : U\fnYi [`VYk]fhgW\UZhYhž`XU`Yf Vi W\ghÅV`]W\`X]fY`_`h`Ub`XYf`<Ui dhghfU»Y``]Y[h"

8Yf`GYY`]gh`Y]b`dYfZY`_`hYf`Nk]gW\Ybghcdd`Z0f`X]Y`Yb][Ybž`X]Y`Ub X]Y`C gh`0ghY`ZU\`fYb" `9fk UfhYb`G]Y`j cb`@Ui bW\ghcb`Ui g`Y]bY` : U\fh j cb`%`Ghi bXY`i bX`) \$`A]bi hYb" `K Ybb`G]Y`j cb`5bgcb`g`6Um]b F]W\hi b[`K YghYb`_`ca a Ybž]gh`Yg`Y]bY`_`0fnYfY`` \$!a]b0h][Y : U\fh"

U`h1 H5GA 5B ⇒B `?@9-B 9F `6@5I 9F `G99 2

5I 7< `B`89F`Bÿ<9.`<U``g` : U``g`p`@]`mXU`Y! : Å``Y`p`Gh`7c`i`a`VU` : U``g

I `h]a Uh]j Y`hUga Ub]gW\Y`F`Y]gYfYggci fW

⇒W\`c`ZYž`⇒bYb`[YZÅ``h`X]YgYf`6`c[VY]hfU[``J`YfdUggYb`G]Y`Z0f k Y]hYfY`F`Y]gY!`i bX`5VYbhYi Yf]bgd]fUh]cbYb`Xi fW`HUga Ub]Yb

b]W h'a Y]bY'i `h]a Uh]j Yb'; i]XYg'i bhYb"

`* &'Yd]gW Y'5_h]j]hAhYb']b`HUga Ub]Yb`
, VYfbUW hi b[ga Ò[`]W_X]hYb']b`HUga Ub]Yb`fVYghY`C fhYŁ`' &`
YfghUi b`]W Y`K UggYfZ`Y`Y]b`HUga Ub]Yb`') `A i gh!Xc!
K UbXYfi b[Yb']b`HUga Ub]Yb`

6Ygi W X Y g '@]hh`Y`6`i Y`@U_Y`HUga Ub]Yb`

6Yj cf'k]f`Ub_Ua Ybž`UhhYb'k]f': chc'g'j cb`X]YgYa`i b[`Ui V`]W Yb`
V`Ui Yb`GYY`[YgY\Yb`i bX`k UfYb`ØVYfnYi [hž`XUgg`Yf`Y]bYb`6Ygi W`
Ui Zi bgYfYa`hUga Ub]gW Yb`J Ub!FcUXhf]d`k Yfh'k Uf""GcVU`X`k]f`
X]Y`<Ui dhghfU»Y`j Yf`UggYb`UhhYbž`gU\Yb'k]f`j ca`5i gg]W hgd i b_h`
Ui g`XUg'a`]W][!hØf_]gZUfVYbY`K UggYf`XYg`GYYg"

- `U`h1` H5GA 5B`9B`@` : H5I` : B 5<A 9` 2`
- `U`h1` ?@9`B 9F`6@5I` 9F`G99`H5GA 5B`9B` 2`
- `U`h1` ?@9`B 9F`6@5I` 9F`G99`5I` GHF 5@9B` 2`
- `U`h1` H5GA 5B`9B`!6@5I` 9F`G99` 2`

W`k ØfXY`Yfk UfhYbž`XUgg`X]Y`a`Y]ghYb`@Yi hY`k U\fgW Y]b`]W`bi f`
Yhk U`%\$!%)`A]bi hYb`\]Yf`j Yfvf]b[Yb`a`ØgghYbž`i`a`g]W`gW`bY`
X]Y`6Y]bY`ni`j`YfhfYhYb`"5`YfX]b[g`\UVYb`k]f`\]Yf`k U\fgW Y]b`]W`
k Y]h`ØVYf`Y]bY`Ghi bXY`j YfvfUW hž`6`]XYf`[Ya UW hi bX`XYb`
i b[`Ui V`]W Yb`6`i Yg`VYk i bXYfh`
U`h1` H5GA 5B`9B`!6@5I` 9F`G99` 2`

? Ubb`a Ub`Ua` '@]hh`Y`6`i Y`@U_Y`HUga Ub]U` gW`k]a`a`Yb`3`

@Y]XYf`]gh`XUg`GW`k]a`a`Yb`Ua` '@]hh`Y`6`i Y`@U_Y`Ui Z[fi bX`XYf`
[]Z][Yb`A]bYfU`UVZ`Yž`X]Y`Ui g`XYf`YfU`XYg`N]bbUVVUi g`ØVf][
[YV`]YVYb`g]bXž`b]W`hini`Ya`dZY`\Yb"

K Ufi a`]gh`@]hh`Y`6`i Y`@U_Y`V`Ui`3`

5i Z[fi bX`XYg`\c`Yb`A]bYfU`]Yb[Y`U`hg]a`K UggYf`]gh`XYf`GYY`XUg`

[UbnY'>\f'ØVYf']b'Y]bYa 'a]'W][Yb'hØf_]gV`Ui Yb': UfVhc b
[Y\U`hYb"8]YgY`A]bYfU`Y]b`k UfYb'5VZÄ`Y`Ui g'U\fy`Ub[Ya
U`i j]U`Ya `N]bbUVVUi žXYf`_i fn`bUW`XYa `Nk Y]hYb`K Y`h_f]Y[
YbXYhY"

HUhgÄW`]W`]ghXYf`GY`gY`VghY]b`j cb`A YbgW`Yb`[Y[fUVYbYg
@cW`Ui g`Y]bYf`A]bY"5`g`X]Y`6Yf[VUi dUW`h`YbXYhYž`j Yf`Y»Yb`X]Y
6Yf[`Yi hY`XUg; YV]Yh`i bX`K UggYf`ZØ`hY`VU`X`XYb`<c`fUi a`i bX
V]`XYhY`XYb`@]h`Y`6`i Y`@U`_Y`HUga Ub]U"
U`h1 ?@9-B9F`6@5I 9F`G99`2

I bhYf`_i bZh`]b`XYf`BÄ\Y`j cb`@]h`Y`6`i Y`@U`_Y`
HUga Ub]Yb

K Ä\fybX`k]f`]b`i bgYfYa `gY`Vgh`i a [YVUi hYb`K c`ba cV]`Xi fW
HUga Ub]Yb`[YfY]gh`g]bXž`\UVY`]W`a]f`hfcmXYa `X]Y`NY]h
[Ybca a Ybž`Y]b][Y`XYf`Ua `VYghYb`VYk YfhYhYb`I bhYf`_ØbZhY`]b`XYf`
BÄ\Y`j cb`@]h`Y`6`i Y`@U`_Y`ni `fYW`YfW`]YfYb"BUW`Zc`[YbX`Y]bY
Ni gUa a YbZUggi b[.

@cX[Y`]b`XYf`BÄ\Y.`D]cbYYf`@cX[Y`HUga Ub]Yb

: UbhUgh]gW`Y`GW`Yi bYbi bhYf`_i bZh`]b`8YfVm`8YfVm`8][g`6Ufb

8Yb_a U`[YgW`ØhnhYg`5bk YgYb`fW"%, +(Ł'a]h; UfhYb.
F]b[Ufccca U`<Yf]hU[Y`@cX[Y`

7Ua d]b[`]b`XYf`BÄ\Y`j cb`@]h`Y`6`i Y`@U`_Y`

CVk c`\`Yf`XYfnY]h`b]W`h`Ui Z`7Ua dYfa U`hY`cXYf`UbXYfYb`5ddg
Ui Z[YZØ\fh`]ghž`Z]bXYb`G]Y`Y]bYb`_`Y]bYb`6YfY]W`Y`hk Ug`k Y]hYf`
i bhYb`j cb`XYf`5i gg]W`hgd`UhhZcfa "`G]Y`_ØbbYb`\]Yf`]b`Y]bYa
K c`ba cV]`cXYf`K c`bk U[Yb`WJa dYb"

CVk c`\`k]f`X]Y`BUW`h`b]W`h`\]Yf`j YfVfUW`h`\UVYbž`gU\`Yg`Ui Z
`YXYb`: U``bUW`Y]bYa `[fc»Ufh][Yb`Cfh`Ui gž`k Ybb`G]Y`X]Y`: U\fh
i bhYfVfYW`Yb`a ØW`hYb"

U`h1 ?@9-B9F`6@5I 9F`G99`H5G`2

K Y]hYfY`5_h]j]hÀhYb`]b`B c fXc gh! HUga Ub]Yb`

⇒W \c ZYž`XUgg`X]YgYf`_i fnY`6Ygi WYfZØ\ fYf`ZØf`@]hY`6`i Y`@U_Y
HUga Ub]U`⇒bYb`VY]`XYf`D`Ubi b[`⇒fYf`HUgg]Y!5VYbhYi Yf`[Y\c`ZYb
\Uh`K Y]hYfY`5_h]c bYb`i bX`5_h]]hÀhYb`]b`XYf`I a [YVi b[
Z]bXYb`G]Y`]b`Y]b][Yb`a Y]bYf`UbXYfYb`6`c[g`i bhYb`

"

8YhU]`g

6Ygi WYb`G]Y`i bg`Ui Z.`Y]bY!fY]gY"XY