

8 fUa U`Ua `BcfXYbXUa a .`6J`\$-`[Y[Yb
HGJ`< Ua a !<YYggYb`j cfnY]h][
UV[YVfcWXYb

9]b`i » VU`gd]Y`XYf`?fY]g`][U`6`nk]gWXYb`6J`\$-`<Ua a`i bX
HGJ`< Ua a !<YYggYb`k i fXY`bUWXY]bYa` ; YfUb[Y`i a`Y]bYb
9]bk i fZ`UV[YVfcWXYb"

5a`BcfXYbXUa a`]b`<Ua a`k i fXY`XUg`i » VU`gd]Y`XYf`?fY]g`][U
6`nk]gWXYb`XYa`6J`\$-`<Ua a`i bX`XYa`HGJ`< Ua a !<YYggYb
j cfnY]h][`UV[YVfcWXYb`"8]Yg[YgWU`X`ž`U`g`XYf`Gd]Y`ghUbX`VYfY]hg
\$.) `ni [i bghYb`XYf` ; ÅghY`Ui`g`<Ua a !<YYggYb`k Uf`"8 Ug
i bYfk UfhYhY`9bXY`_Ua`fi bX`&\$`A]bi hYb`j cf`XYa`cZZ]n]Y`Yb
5VdZZ`i bX`gcf[hY`Z0f`5i ZFY[i b[`i bX`i bj Yfgh`AbXb]g`i bhYf`XYb
6YhY]][hYb"

8Yf`HfU]bYf`XYg`6J`\$-`<Ua a`ž`<Y]bn`GWfch`ž`ZUbX`bUWXYa
JcfZU`_Y]bY`dUggYbXYb`K cfnY`" ÆW`V]b`ja a Yf`bcW`VUZZ`ž
Åi » YfhY`Yf`g]W`ØVYf`XUg` ; YgWY`Yb`ž`XUg`]b`Y]bYa`ni b`ÅW`gh
fi`\\[Yb`Gd]Y`gY]bY`K YbXi b[`bU`a`"8Yf`HGJ`<Ua a !<YYggYb
\\UhhY`k`Å`fYbX`XYf`[YgUa`hYb`DUfh]Y`Xca`]b]YfYbX`[Ygd]Y`hi bX
k Uf`]b`i : Ø`fi b[`i [Y[Ub[Yb`ž`Ui`W`hfch`n`Y]bYf` ; Y`V!F`chYb`? UfhY`ž`X]Y
g]Y`]b`XYf`*`\$`"A]bi hY`]b`i bhYfnU`\\VfUW`hY`"8]Y`i bYfk UfhYhY
9g_U`Uh]cb`VY[Ubb`a`]h`Y]bYa` ; YfUb[Y`i a`Y]bYb`9]bk i fZ`XUg
gW`]Y»`]W`ni`a`Y`fYfYb`D`Uhnj`Yfk`Y]gYb`Z0`fhY"

7\Ucg`Ui Z`XYa` :`Y`X

BWXYa` ; YfUb[Y`k i fXY`Y]b`VYfY]hg`j Yfk UfbhYf`Gd]Y`Yf`XYg
HGJ`< Ua a !<YYggYb`a`]h` ; Y`V!F`ch`j`ca`D`Uhn`[YgW]W`h`"8]Y
G]hi`Uh]cb`Yg_U`]YfhY`k`Y]hYfž`U`g`Y]b`k`Y]hYfYf`Gd]Y`Yf`XYg`HGJ`g]W
`Ui`hghUf`_`VYgW`k`YfhY`i bX`YVYbZU`g`Y]bY` ; Y`V!F`chY`? UfhY`Yf`\\Y`h"

⊕·XYf': c`[Y`k i fXY`XYf`HfU]bYf'6ØYbh? UfU_UmU`gck]Y`Y]b
6YhfYi Yf`XYg`J YfY]bg`YVYbZU`g`XYg`D`UhnYg`j Yfk]YgYb" A]f
k i fXY`VYf]W`hYhž`XUgg`XYf`HfU]bYf`ja`J c`gd]bh`b]bhYf`XYa
GW`YXgf]W`hYf`Yf[YfUbbh]gh ž`Yf`Ai hYfhY`Hc fghYb`DYfgW`_Yž
J c fg]hnYbXYf`XYg`? fY]ggW`YXgf]W`hYfUi`ggW`i`ggYg" Ni j c f`UhnY
XYf`GW`YXgf]W`hYf`MØ_gY`H]fU`j Yfgi W`hž`a]h`<]`ZY`XYg`bYi Yb
GHC DD!`? cbnYdhg`Y]bY`6Yfi`\[i b[`YfVY]ni ZØ`fYbž`XcW`Y`hnh]W`
gU`Yf`g]W`[Ynk i b[Ybž`X]Y`DUfh]Y`UVni VfyW`Yb"

8Yf`J c fZU`gcf[hY`b]W`h`bi f`ZØf`7`Ucg`Ui ZXYa` : Y`Xž`gcbXYfb
Ui W`ZØf`Y]b`_UfYg`A]ggj Yfgh`AbXb]g`nk]gW`Yb`XYb`HYUa`g"
Gdcfh]W`Yf`@Y]hYf`XYg`HGJ`<Ua`a`!<YYggYbž`9f`Ub`i`i`gž`Ai » YfhY
g]W`ni`XYb`9b hgW`Y]Xi b[Yb`XYg`GW`YXgf]W`hYfg`UX`Åei Uh` 8]Y
VY]XYb` ; Y`V!F chYb`? UfhYb`[Y[Yb`i bg`VY]`XYa` 9]bk i fZk UfYb
VYfYW`h][h`8U`[]Vh`Yg`_Y]bY`nk Y]`A Y]bi b[Yb" `@Ui h`i`i`g`[UV`Yg
_Y]bY`6Y`Y]X][i b[Yb`cXYf`? ØfdYf`]W`Y`8fc`i b[Ybž`X]Y`Y]bY`gc`W`
XfUgh]gW`Y`A U» bU`a`Y`fYW`hZYfh][Yb`_ØbbhYb"

B UW`k]f`_i b[Yb`i bX`k Y]hYfY 9b hgW`Y]Xi b[Yb

8]Y`8]g`_i gg]cb`i a`X]Y`K Yfhi b[`XYg`Gd]Y`g`k]fX`bi b`Ub`X]Y
Gdfi W`_Ua`a`Yf`ØVYf[YVYb" K]f`k c`Yb`bi f`j YfbØbZn][`UfVY]hYb`
i bX`XUbb`gc`Y]b`A]gh ž`_ca`a`Ybh]YfhY`i`i`g`XYb`J c fZU`" 8]Y
9b hk]W`_i b[Yb`k YfZYb`Y]b`@]W`h`Ui Z`X]Y`U`_hi Y`Yb
<YfUi`gZc`fXYfi b[Ybž`j c f`XYbYb`XYf`5a`UhYi fZ] » VU`ghY`hž
]bgVYgcbXYfY`]b`6Yni [`Ui Z`X]Y`F Y[Y`i b[Yb`i bX`XYfYb
I a`gYhni b[`Xi fW`X]Y`GW`YXgf]W`hYf" 8Yf`J c fZU`_Ubb`U`g
Gd]Y[Y`i b[`Y]bYf`[fØ» YfYb`Dfc`V`Ya`Uh]_]bbYf`U`V`XYg
5a`UhYi fZ] » VU`g`[YgY`Yb`k YfXYbž`k c`9a`ch]cbYb`c`Zn
`cW`_cW`Yb`i bX`X]Y`5ha`cgd`ÅfY`Ui Z`XYa`D`Uhn`Ub[YgdUbbh]gh"

5i`g`gdcfh]W`Yf`G]W`h]gh`X]Y` : fU[Yž`k]Y`X]Y`Gdfi W`_Ua`a`Yf`ØVYf
XYb`Gd]Y`UVVfi W`Yb hgW`Y]XYb`k]fXž`j cb`[fc» Yf`6YXYi hi b[" CV
XUg`Gd]Y`ZØf`XYb`HGJ`U`g`[Yk`cbbYb`[Yk`YfhYh`k]fX`cXYf`c`V`Yg`ni
Y]bYf`BYi Ubgyhni b[`_ca`a`hž`V`Y]Vh`UVni k UfhYb" 8Yf`J c fZU`Y`Vh
`Yfj c fž`k]Y`gW`bY`Y]b` : i » VU`gd]Y`_]ddYb`_Ubb`i bX`k Y`W`Y
? cbgYei YbnYb`i bYfk UfhYhY`G]hi Uh]cbYb`ZØf`Gd]Y`Yfž`HfU]bYf`i bX

J YfY]bY` \ UVYb`_ÖbbYb" '8]Y`Bchk YbX][_Y]h`Y]bYf`_UfYfYb
?ca a i b]_Uh]cb`i bX`Y]bYa` VYggYfYb`J Yfgh`bXb]g`nk]gWYb
GWX]YXgf]W hYfb`i bX`A UbbgW UZhYb`k]fX`Xi fW`X]YgY`G]hi Uh]cb
i a gc`XYi h]WYf"

GdUbbi b[`i bX`9a ch]cb`]a`5a UhYi fZi » VU`

8]YgY`9fY][b]ggY`g]bX`b]W h`bi f`Y]bY`5bY]bUbXYffY] \ i b[`j cb
J cfZ`Yb`k `A`fYbX`Y]bYg`Gd]Y`g" `G]Y`k YfZYb`Ui W` : fU[Yb`Ui ZØVYf
XYb`I a [Ub[`a]h`9a ch]cbYbž`X]Y`]a`5a UhYi fZi » VU`]a a Yf`Y]bY
Fc`Y`gd]Y`Yb`k YfXYb" `5i W`X]Y`9]bZØ\fi b[`bYi Yf`FY[Y`bž`k]Y`XUg
GHCDD! ?cbnYdhž`VYXUfZ`Y]bYf`gcf[Z`h][Yb`?ca a i b]_Uh]cb`i bX
5i gV]`Xi b[ži a`gc`WY`A]ggj Yfgh`bXb]ggY`]b`Ni _i bZh`ni
j Yf\]bXYfb" `9g`V`Y]Vh`gdUbbYbXž`k]Y`g]W`X]Y`G]hi Uh]cb
k Y]hYfYbhk]W`Y`h`i bX`k Y`WY`@Y`fYb`Y`mh`]W`Ui g`X]YgYa` J cfZU`
[Ync[Yb`k YfXYb"

Gdcfh`]WY`F]j U`]h`hYb`]b`XYf`FY []cb

⊕`XYf`FY []cb`<Ua a`]gh`X]Y`F]j U`]h`h`nk]gWYb`XYb
: i » VU`j YfY]bYb`h]YZ] Yfk i fnY`h`i bX`hf`A[h`ni`Y]bYf`VYVbgc
gdUbbYbXYb`k]Y`a UbW`a U`_cbZ]_hfY]WYb`5ha`cgd`ÅfY`Ui Z`XYa
Gd]Y`ZY`X`VY]" `8]YgY`gdcfh`]WYb`F]j U`]h`hYb`V]YhYb`XYb`HYUa`g
b]W h`bi f`Y]bYb`5bfY]nž`VYggYfY`@Y]ghi b[Yb`ni`Vf]b[Yb`ž`gcbXYfb
g]Y`ZØ\fYb`Ui W` `Åi Z][`ni` \]m][Yb`A ca YbhYbž`k]Y`g]Y`]b`XYa
UV[YVfcWYbYb`Gd]Y`nk]gWYb`XYa`6J`\$-`<Ua a`i bX`XYa`HGJ
<Ua a`!<YYggYb`ni`VYcVUW`hYb`k UfYb" `8]Y`9a ch]cbYb`i bhYf
Gd]Y`Yfbž`HfU]bYfb`i bX` : Ub g`_ÖbbYb`X]Y` ; Ya ØhYf`gW`bY`
Yf\]hYbž`VYgcbXYfg`]b`XUfUi Z`VUg]YfYbXYb`8YfVmgd]Y`Yb"

8]Y` ; YgW]W hY`XYf`F]j U`]h`hYb`]a`5a UhYi fZi » VU`]gh`cZh`j cb
5i gY]bUbXYfgYhni b[Yb` [Ydf`A[hž`X]Y`gck c` `dcg]h]j Y`U`g`Ui W
bY[Uh]j Y`5gdY`hY`XYg`Gd]Y`g` \Yfj`cffi ZYb" `⊘b[ghY`J cfZ`Y`k]Y`]a
[YbUb`hYb`Gd]Y`j YfXYi h]WYbž`k]Y`gW`bY`XYf`Gd]Y`j Yf`Ui Z
Xi fW`9a ch]cbYb`i bX`GdUbbi b[Yb`VYY]bZi`ggh`k YfXYb`_Ubb"
Gc`WY`G]hi Uh]cbYb`g]bX`b]W h`bYi ž`gcbXYfb` \ UVYb`]b`j]Y`Yb
5a UhYi f!@[Yb`<]ghcfY" `G]Y`YfZcfXYfb`j cb`U`Yb`6YhY][]hYb`Y]b
VYgcb`bYbYg`<UbXY`bž`i a`XUg`Gdcfh`_]a`U`dcg]h]j`ni` [YghU`hYb"

GW\]YXgf]W\ hYfYb hgW\ Y]Xi b[Yb`i bX`]\fY

5i gk]f_i b[Yb

8]Y`F c`Y`XYf`GW\]YXgf]W\ hYf`]a` : i » VU``]ghj cb`nYbhfU`Yf
6YXYi hi b[ž]bgvYgcbXYfY`]b`5a UhYi f`][Ybž`]b`XYbYb`X]Y`Gd]Y`Y
cZhj cb`Y]bYa` Yb[U[]YfhYbž`YXcW`i bYfZU`fYbYb
GW\]YXgf]W\ hYfhYUa` [Y`Y]hYh`k YfXYb`"9bhgW\ Y]Xi b[Ybž`k]Y`X]Y
JYf[UVY`j cb` ; Y`V!F chYb`?UfhYbž`_ÖbbYb`XYb`JYf`Ui ZY]bYg`Gd]Y`g
YI hfYa` VYY]bZi ggYb`i bX`ZØ`fYb`b]W\ h`gY`hYb`ni`?cbhfcj YfgYb`"
8]Y`GW\]YXgf]W\ hYf`a ØggYb`b]W\ h`bi f`X]Y`F Y[Y`b`k]ggYb`i bX
i a gYhmYbž`gcbXYfb`Ui W`]b`Ya ch]cbU`Ui Z[Y`UXYbYb`G]hi Uh]cbYb
fi \][`i bX`ZU]f`V`Y]VYb`"

⇒ : U`XYg`UV[YVfcW\ YbYb`Gd]Y`g`k i fXYb`X]Y`9bhgW\ Y]Xi b[Yb
XYg`GW\]YXgf]W\ hYfg`gck c`j cb`XYb`Gd]Y`Yfb`U`g`Ui W`j cb`XYb
HfU]bYfb`Y`Zh][`X]g_i h]Yfh`"8]Y`F YU_h]cbYb`Ui Z`gc`W\ Y
9bhgW\ Y]Xi b[Yb`_ÖbbYb`cZh`XUni`ZØ`fYbž`XUgg`Y]b`c`bY`]\b
gdUbbYbXYg`Gd]Y`]b`Y]b`7`Ucg`i a gW`À[h`
GW\]YXgf]W\ hYf`_ca`a]gg]cbYb`]b`j]Y`Yb`@[Yb`UfVY]hYb
_cbh]bi]Yf`]W\ `XUfUbž`X]Y`GhUbXUfXg`ni`j YfVYggYfb`i bX`X]Y
GW\]YXgf]W\ hYf`Ui Z`gW`k]Yf][Y`G]hi Uh]cbYb`VYggYf`j cfn`i VYfY]hYb`"
8]Yg`_ÖbbhY`Yhnh]W\ `XUni`VY]hfU[Ybž`Ä`b`]W\ Y`J cfZÄ`Y`ni
j Yfa Y]XYb`i bX`X]Y` : U]fbYgg`]a`Gd]Y`ni`k U`fYb`"

F YU_h]cbYb`XYf` : Ub[Ya`Y]bXY

8]Y`5b`Äb[Yf`XYf`VY]XYb`HYUa`g`gd]Y`Yb`Y]bY`YbhgW\ Y]XYbXY
F c`Y`]b`YXYf` : i » VU``VY[Y[bi b[ži bX`]\fY`F YU_h]cbYb`Ui Z`X]Y
; YgW\ Y`b]ggY`k Ä`fYbX`i bX`bUW`XYa`Gd]Y`g]bX`cZhj]Y`ZÄ`h][`"⇒a
: U`Y`XYg`Gd]Y`g`nk]gW\ Yb`XYa`6J`\$-`<Ua`a`i bX`XYa`HGJ
<Ua`a`!<YYggYb`U`UVYb`X]Y` : Ub`g`Ui Z`XYb`5VVfi W\ `XYg`Gd]Y`g`a`]h
I ba`i h`fYU[]Yfhž`XU`g]Y`g]W\ `Y]bY`ZU]fY`i bX`gdcfh]W\ Y
5i gY]bUbXYfgYhni b[` [Yk ØbgW\ h`\UhYb`"F Y[]cbYb`a`]highUf`_Yb
: i » VU``hfUX]h]cbYb`Yb`hk]W`_Y`b`cZh`Y]XYbgW\ UZh]W\ Y` : Ub`VUgYbž`X]Y
g]W\ `ghUf`_a`]h]\fYb`JYfY]bYb`]XYbh]Zn]YfYb`i bX`g]W\ `Ya`ch]cbU`
Ub`XYb`Gd]Y`Yb`VYhY`]][Yb`"

Gcn]U`Y`A YX]Yb`g]bX`i]b`XYf`\Yi h][Yb`NY]h`Y]b`k]W h][Yg
GdfUW fc`f`ZØf` : Ubgž`i a `i]\fY`A Y]bi b[Yb`i bX`9a ch]cbYb
Ui gni XfØW_Yb``8]Y`F YU_h]cbYb`Ui Z`D`UhhZcfa Yb`k]Y`Hk]hhYf`cXYf
: UWVcc`_`_ØbbYb`k Y]hfY]W YbXY`5i gk]f_i b[Yb`\UVYb`i bX`X]Y
8]g_i gg]cb`i a `XUg`9fY][b]g`k Y]hYf`Ub\Y]nYb``8]Y` : Ubg`ZcfXYfb`cZh
a Y`f`?`Uf\Y]hi bX` ; YfYW h][_Y]h`b`XYf`GW]YXgf]W hYfUi g`Y[i b[ž
k Ug`g]W `Ui ZXUg`ni _ØbZh][Y`J Yf\U`hYb`gck c`\`j cb`Gd]Y`Yfb`U`g
Ui W `j cb`GW]YXgf]W hYfb`Ui gk]f_Yb`_Ubb"

8YhU]`g

6Ygi W Yb`G]Y`i bg`Ui Z.`b!U["XY