

6Yhfi b\_YbYf'5i hcZU\ fYf']b'A i » VUWΛ .  
Dc`]nY]'ghcddh'[ YZÅ\ f`]WΛ Y': U\ fh

6Yhfi b\_YbYf'5i hcZU\ fYf']b'BYi ghUXh'Dc`]nY]'ghcddh  
) &! Å\ f][ Yb'a ]h'ž\* 'Dfca ]`Y'i bX`Y]hYh'a Y\ fYfY  
GhfUj YfZU\ fYb'Y]b"

5a '8cbbYfghU[ UVYbX'\_i fn'j cf'&&'l \f'\_Ua 'Yg']b'A i » VUWΛ 'ni  
Y]bYa 'VYgcf[ b]gYffY[ YbXYb'J cfZU`ž'XYf'X]Y'5i Za Yf\_gUa \_Y]h'XYf  
Dc`]nY]'Ui Zg]WΛ 'nc[ "'5bk c\ bYf'Ui g'XYf'GhfU»Y'5b'XYf'9gY`g\Ui h  
\UhhYb'i a [ Y\YbX'X]Y'Dc`]nY]'j YfghÅbX][ hž'XU'g]Y'Y]bYb  
5i hcZU\ fYf'VYcVUWΛ hYh'\UhhYbž'XYfž'cZZYb\_i bX][ 'VYhfi b\_Ybž  
Ybh[ Y[ Yb'XYf'9]bVU\ bghfU»Y'Z' \f"GWΛ cW\_]Yfh'j cb'X]YgYa  
J Yf\U'hYbž'XUg'dchYbn]Y``[ YZÅ\ f`]WΛ Y': c`[ Yb'\UVYb'\_cbbhYž  
U'Ufa ]YfhYb'g]Y'X]Y'6Y\ ÖfXYb"

5`g'X]Y'Dc`]nY]ghfY]ZYb'XYf'BYi ghUXhYf'ϕgdY\_h]cb'Y]bhfUZYbž'k Uf  
XYf': U\ fYf'Ybh[ Y[ Yb'XYf'9fk Ufhi b[ Yb'XYf'NYi [ Yb'b]WΛ h  
]a ghUbXYž'gY]bYb'K U[ Yb'g]WΛ Yf'ni 'dUf\_Yb'i bX'k c`hY  
ghUhhXYggYb'k Y]hYfZU\ fYb"8]Yg'k i fXY' [ `ØW\_]WΛ Yfk Y]gY'j cb'XYb  
6YUa hYb'j Yf\]bXYfhž'VYj cf'Yg'ni 'Y]bYa 'k Y]hYfYb'J cfZU`  
\_ca a Yb'\_cbbhY"8]Y'6YUa hYb'bU\ a Yb'XYb'A Ubb'j]b  
5i [ YbgWΛ Y]b'i bX'ghY`hYb'gcZcfhY]bYb'ghUf\_Yb'5'\_c\c`[ Yfi WΛ  
ZYghž'XYf'j cb']\a 'Ui g[ ]b[ "

HYghg'i bX': c`[ Yb'XYf'5`\_c\c`ZU\ fh

9]b'Xi fWΛ [ YZØ\ fhYf'5hYa U'\_c\c`hYgh'Yf[ UV'YfgWΛ fYW\_YbXY'&ž\*  
Dfca ]`Y' 'Y]bY'NU\`ž'X]Y'k Y]h'ØVYf'XYa '[ YgYhm`]WΛ 'Yf'Ui VhYb  
@]a ]h`]Y[ h"Ni a 'J Yf[ `Y]WΛ . ϕ'8Yi hgWΛ 'UbX`]Y[ h'X]Y'; fYbnY'ZØf  
XUg': U\ fYb'i bhYf'5`\_c\c`Y]bZi gg'VY]`\$ž) 'Dfca ]`Y'"6Y]'gc`WΛ  
\c\Yb'K YfhYb']gh'X]Y': U\ fhØWΛ h][ \_Y]h'XYg': U\ fYfg'ghUf\_

Y]b[ YgWfÅb\_hžk Ug`X]Y`GWk YfY`XYf`G]hi Uh]cb`XYi h]W`a UW`h"  
8Yf`) &!`Å\`f][ Y`A Ubb`gU\`g]W`ni XYa`XYf`6YgW`U[ bU\`a Y`gY]bYg  
: Ø\`fYfgW`Y]bg`gck ]Y`gY]bYg`: U\`fnYi [ g`[ Y[ YbØVYfž`k cXi fW`]\`a  
X]Y`A Ò[ `]W`\_Y]h`Ybhc[ Yb`k i fXYž`XUg`HYa dc`gY]bYg[ YZÅ\`f`]W`Yb  
J Yf\`U`hYbg`Zc`fmi gYhnYb"

BYVYb`X]YgYb`i ba ]hhY`VUFYb`A U» bU\`a Yb`k i fXYb`[ Y[ Yb`XYb  
: U\`fYf`a Y\`fYf`GhfUž] YfZU\`fYb`Y]b[ Y`Y]hYh`8 ]Y`fYW`h]W`Yb  
GW`f]hhY`g]bX`b]W`h`bi f`Y]bY`FYU`\_h]cb`Ui Z`XYb`J cfZU``gY`Vghž  
gcbXYfb`X]YbYb`Ui W`X`Ya`GW`i hn`XYf`² ZZYbh]W`\_Y]h`Gc`W`Y  
A U» bU\`a Yb`g]bX`bchk YbX][ ži a`X]Y`GhfU» Yb`g]W`YfYf`ni`a UW`Yb  
i bX`i a`Å\`b`]W`Y`J cfZÅ``Y`]b`Ni \_i bZi`ni`j Yfa Y]XYb"

8Yf`: U``k ]fZi`Y]b`@]W`h`Ui Z`X]Y`Ub\`U`hYbXY`DfcV`Ya Uh]\_`XYg  
: U\`fYbg`i bhYf`5`\_c\`c`Y]bZi ggž`X]Y`b]W`h`bi f`X]Y`G]W`Yf\`Y]h`XYg  
: U\`fYfg`gY`Vghž`gcbXYfb`Ui W`X]Y`UbXYfYf`J Yf`\_Y\`fghY]`bY\`a Yf  
[ YZÅ\`fXYh`6Y]gc`W`j YfUbhk cfhi b[ g`cgYa`J Yf\`U`hYb`]gh`Yg  
k ]W`h][ ž`XUgg`Dc`nY]i bX`ž gh]n`\_cbgYei Ybh`\`UbXY`bž`i a`X]Y  
; YZU\`fYb`ni`a ]b]a ]YfYbž`X]Y`Xi fW`U`\_c\`c`VYX]b[ hY`: U\`fhYb  
YbhghY\`Yb``8 ]Yg`\_ÒbbhY`a Ò[ `]W`Yfk Y]gY`Ui W`U`g  
UVgW`fYW`\_YbXYg`6Y]gd]Y`ZØf`UbXYfY`X]YbYbž`X]Y`[ `Ui VYbž`hfc`m  
]\`fYf`5`\_c\`c`]g]Yfi b[ `]\`bhYfg`GhYi Yf`ghY][ Yb`ni`\_ÒbbYb"

8YhU]`g

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