

A c j U W U f ' D F C . ' 8 ] [ ] h U ` Y ` @ Ö g i b [ Y b ` n i f  
C d h ] a ] Y f i b [ ` X Y f ' : U \ f n Y i [ ` c [ ] g h ] \_

9 b h X Y W \_ Y b ` G ] Y ž ` k ] Y ` A c j U W U f ` X ] Y ` < Y f U i g Z c f X Y f i b [ Y b ` ] b ` X Y f  
: U \ f n Y i [ ` c [ ] g h ] \_ ` a ] h ` ] b b c j U h ] j Y b ` @ Ö g i b [ Y b ` a Y ] g h Y f h "  
9 f Z U \ f Y b ` G ] Y ž ` k ] Y ` X ] Y ` D ` U h h Z c f a ` A c j U W U f ` D F C ` I b h Y f b Y \ a Y b  
V Y ] ` X Y f ` C d h ] a ] Y f i b [ ` j c b ` : U \ f n Y i [ Ø V Y f Z Ø \ f i b [ Y b  
i b h Y f g h Ø h n h ž ` ? c g h Y b ` g Y b \_ h i b X ` [ ` Y ] W \ n Y ] h ] [ ` \ Ø W \ g h Y  
N i j Y f ` Ä g g ] [ \_ Y ] h i [ U f U b h ] Y f h " ð X Y U ` ` Z Ø f ` 5 i h c j Y f a ] Y h Y f ž  
: i \ f d U f \_ a U b U [ Y f ` i b X ` : U \ f n Y i [ \ Ä b X ` Y f " @ Y g Y b ` G ] Y ` Y h n h  
a Y \ f ` Ø V Y f ` X ] Y ` N i \_ i b Z h ` X Y f ` A c V ] ] h Ä h `



⇒ b b c j U h ] j Y ` 5 b g Ä h n Y ` n i f ` 6 Y k Ä ` h ] [ i b [ ` X Y g  
: U \ f Y f a U b [ Y ` g ` ] b ` X Y f ` 6 f U b W \ Y

8 ] Y ` A c V ] ` ] h Ä h g V f U b W \ Y ` V Y Z ] b X Y h ` g ] W \ U b ` Y ] b Y a ` K Y b X Y d i b \_ h "  
5 b [ Y g ] W \ h g ` X Y g ` : U \ f Y f a U b [ Y ` g ž ` X Y f ` X i f W \ X ] Y ` 7 c f c b U ! D U b X Y a ] Y  
i b X ` X ] Y ` U \_ h i Y ` ` Y b ` [ Y c d c ` ] h ] g W \ Y b ` G d U b b i b [ Y b ž ` k ] Y ` X Y b ` I \_ f U ] b Y !  
? c b Z ] \_ h ž j Y f g h Ä f \_ h ` k i f X Y ž ` g ] b X ` I b h Y f b Y \ a Y b ` [ Y n k i b [ Y b ž ` b Y i Y  
@ Ö g i b [ Y b ` n i ` Z ] b X Y b " ` 8 ] Y g Y ` G ] h i U h ] c b ` \ U h ` b ] W \ h i b i f ` 5 i g k ] f \_ i b [ Y b

Ui Z'X]Y'@c[ ]gh]\_i bhYfbY\ a Ybž'gcbXYfb'Ui W\ 'Ui Z\_'Y]bYfY': ]fa Yb  
i bX'A ]Yhk U[ YbUbV]YhYfž'X]Y'g]W\ 'j b'Y]bYa 'K YhhVYk YfV'a ]h  
ghY][ YbXYb '? cghYb 'VYZ]bXYb"

⊖ 'X]YgYf'\ YfUi gZcfXYfbXYb '@UbXgW\ UZh'\ Uh'g]W\ 'A cj UWUf'U'g  
]bbcj Uh]j Yf'5\_hYi f'\Yfj cf[ YhUb" '8 Ug'6Yf']bYf'I bhYfbY\ a Yb '\Uh  
\_Øfn']W\ 'gY]bY'D'UhhZcfa 'A cj UWUf'DFC 'Y]b[ YZØ\fhž'i a 'X]Y  
9ZZ]n]Ybn']b'XYf': U\fnYi [ 'c[ ]gh]\_ni 'ghY][ Yfb'i bX' [ 'Y]W\ nY]h][ 'X]Y  
'?cghYb'ni 'gYb\_Yb"' I bgYf'N]Y'k Uf'Ygž'X]Y'5V'Ài ZY'j ca '5i ZhfU[  
V]g'ni f'8c\_i a YbhUh]cb'ni 'cdh]a ]YfYbž'i a 'X]Y'E i U']hÀhi bX  
'?cghYbYZZ]n]Ybn'g]a i 'hUb'ni '[ Yk À\ f'Y]ghYb ž'Yf\_Àfh'9i ghUW\ 'j cb  
K i 'ZZYbž'XYf'; YgW\ÀZhgzØ\ fYf'j cb'A cj UWUf"

8]YgY'D'UhhZcfa ' ]gh'VYgcbXYfg'ZØf'5fVY]h[ YVYf'k ]Y'; Yhmc i fXf]j Y  
j cb'6YXYi hi b[ ž'X]Y'Ui ZY]bY'j Yf'Àgg']W\ Y', VYfZØ\ fi b[ '\fYf  
: U\fnYi [ Y'Ub[ Yk ]YgYb'g]bX"'@Ui h'?cbghUb]b'? 'Y]bž'XYa  
; YgW\ÀZhgzØ\ fYf'XYg'I bhYfbY\ a Ybgž'\Uh'X]Y'Ni gUa a YbUfVY]h  
a ]h'A cj UWUf'VYfY]hg'X]Y'Dfc nYggY'XYi h]W\ 'j YfY]bZUW'h"' 8]Y  
Ui hca Uh]g]YfhYb'6YbUW\ f]W\ h][ i b[ Yb'i bX'Dfchc\_c''Y'\UVYb  
i bgYfYb'5i Zk UbX'Yf\YV']W\ 'fYXi n]Yfhi bX'gcf[ Yb'XUZØfž'XUgg'k ]f  
i bX'i bgYfY'?i bXYb'ja a Yf'VYghYbg']bZcfa ]Yfh'g]bX ž'ZØ[ h'? 'Y]b  
\]bni "

## B Yi Y'DYfgdY\_h]j Yb'Xi fW\ '7fck X!@c[ ]gh]\_

9]b'k Y]hYfYf']bbcj Uh]j Yf'5gdY\_h'XYg'A cj UWUf!?'cbnYdhg']gh'X]Y  
Bi hni b[ 'XYg'7fck X!Df]bn]dg"'8i fW\ 'X]Y'A Ø[ '\W\ \_Y]hž': U\fnYi [ Y  
ZØf'Y]bYb'gma Vc']gW\ Yb'DfY]g'j cb'Y]bYa '9i fc'ni 'j Yfa ]hhY'bž'\Uh  
A cj UWUf'Y]bY'k ]b!k ]b!G]hi Uh]cb'[ YgW\ UZZYb"'8]Yg'Yfa Ø[ '\W\ h'Yg  
gck c'\Df]j UhdYfgcbYb'U'g'Ui W\ '[ Yk YfV']W\ Yb'5bV]YhYfbž'j cb  
XYb'HfUbgdcfha Ø[ '\W\ \_Y]hYb'ni 'dfcZ]h]YfYb"'A ]h'ØVYf'%'\$\$\$\$  
8ck b'cUXg'XYf'A cj UWUf!5dd'\Uh'g]W\ 'X]YgY '@Øgi b[ 'VYfY]hg  
VYk À\fhž'gcXUgg'Ui W\ '7Ua dYf'J Ubg'i bX'HfUbgdcfhYf'j YfZØ[ VUf  
g]bX"

8Yf'A ØbW\ bYf'F Y]gYa cV]!'J Yf'Y]\Yf'C ZZ'\Uh'VY]gd]Y`gk Y]gY'X]Y  
J cfhY]Y'X]YgYf'?ca V]bUh]cb'Yf\_Ubbhi bX'VYf]W\ hY'h]j cb  
9]bgdUfi b[ Yb'j cb'V]g'ni '\* \$i 'VY]', VYfZØ\ fi b[ Yb"'8 Ug

l bhYfbY\ a Yb`\_cbbhY`Xi fW`X]Y`Bi hni b[ `X]YgYf`D`UhhZcfa `b]W h  
bi f`gY]bY`@c[ ]gh]\_\_cghYb`VY]a ` , VYfZØ\ fYb`j cb` : U\fnYi [ Yb  
gYb\_Ybž`gcbXYfb`Ui W`bYi Y`?i bXYb`[ Yk ]bbYbž`X]Y`g]W`ZØf`X]Y  
Ub[ YVchYbYb` : U\fnYi [ Y`]bhYfYgg]YfYb"

## 5i gk ]f\_ i b[ Yb`Ui Z`X]Y`[ YgUa hY`6fUbW X Y

8]Y`<YfUi gZcfXYfi b[ Yb`Xi fW`X]Yb` : U\fyfa Ub[ Y`i bX`ghY][ YbXY  
?cghYb`nk ]b[ Yb`X]Y`[ YgUa hY`6fUbW X Yž`bYi Y`K Y[ Y`ni  
VYgW`fY]hYb"5i hca cV]`YfghY`Yfž`<AbX`Yf`i bX` : i \fdUf\_a UbU[ Yf  
a ØggYb`] \fY`@c[ ]gh]\_ghfUhY[ ]Yb`ØVYfXYb\_Yb" A cj UWUf`\Uh`Y]bY  
D`UhhZcfa `Ybhk ]W\_Y`hž`X]Y`b]W`h`bi f`ZØf`A ]Yhk U[ YbUbV]YhYf  
fY`Yj Ubh]ghž`gcbXYfb`Ui W`ZØf`YXYg`l bhYfbY\ a Ybž`XUg  
: U\fnYi [ Y`hfUbfgdcfh]YfYb`a i gg"

8]YgY`9bhk ]W\_`i b[ Yb`nY][ Yb`XYi h]W`ž`k ]Y`k ]W`h][ `]bbcj Uh]j Y  
@Øgi b[ Yb`]b`XYf`U\_hi Y`Yb`NY]h`g]bX"8]Y`6fUbW X Y`ghY`hij cf`XYf  
5i Z[ UVYž`g]W`gW`bY`ni `UXUdh]YfYbž`i a `XYb`<YfUi gZcfXYfi b[ Ybž  
X]Y`Xi fW`[ `cVU`Y`?cbZ]\_hY`i bX`k ]fhgW`UZh]W`Y`i bg]W`Yf`Y]hYb  
YbhghY`Ybž`VY[ Y[ bYb`ni ` \_ØbbYb"

⊕g[ YgUa hij YfXYi h]W`h`X]Y` ; YgW`]W`hY`j cb`A cj UWUf`i bX`]\fYf  
bYi Yb`D`UhhZcfa ž`k ]Y` : cfhgW`f]hhi bX`?fYUh]j ]h`h`<UbX`]b`<UbX  
[ Y\Yb`\_ØbbYbž`i a `XYb`[ Y[ Ybk `Āfh][ Yb`<YfUi gZcfXYfi b[ Yb`]b  
XYf` : U\fnYi [ `c[ ]gh]\_YfZc`[ fY]W`ni `VY[ Y[ bYb"

: Øf` : `chYb\_i bXYb`ghY`Yb`k Y]hYfY`⊕Zcfa Uh]cbYb`i bhYf`  
**a ]f\_c4 a cj UWUf`Wċa** `cXYf`hY`YZcb]gW`i bhYf`Ž` (- ` ` \$`&` ) -  
+\* \$&`ni f`J YfZØ[ i b[ "

8YhU]`g

6Ygi W X Yb`G]Y`i bg`Ui Z.`a Y]b!VYf`]b`bYh