

F \ Y]b!A U]b!@]b_. '6YXfc\i b['ZØf';]Y» Ybg
k Yfhj c`Yb': YfbYk U`X

8]Y`GhUXh';]Y» Yb`ghY\h'j cf`Y]bYa`a Ugg]j Yb`K U`Xj Yf`i gh
- ž&`<Y_hUf`XYg': YfbYk U`Xg'gc`Yb`ZØf`XYb`F \ Y]b!A U]b!@]b_
[YfcXYh'k YfXYb"

⇒ @UbX_fY]g';]Y» Yb`Xfc\h'Y]bY`Yf\YV`]WXY'; YZ\fxi b[`Y]bYg
k Yfhj c`Yb`K U`X[YV]Yhgž'k Ug`Ui ZX]Y`D`ÄbY`ni a`9fX_UVY`dfc`Y_h
" F \ Y]b!A U]b!@]b_~`ni fØW_ni ZØ\fyb`]gh"8]YgY`A U» bU\ a`Y`n]Y`h
XUfUi ZUVž'K]bXghfca`j cb`XYf`BcfXgYY`]b`XYb`GØXk YghYb
8Yi hgW\`UbXg`ni`hfUbgdcfh]YfYb"K Ä\fybX`j]Y`Y';]Y» YbYf`g]W
XYf`GW\`Öb\Y]h`XYg" : YfbYk U`Xg~`b]W`h`VYk`i`ggh`g]bXž`]gh`X]YgYf
K U`X`X]fY_hj cb`XYb`9]b[f]ZYb`VYhfcZYb"

8 Ug`i bhYfbY\`a Yb`5a`df]cb`d`Ubhž`Y]bY`HfUggY`Xi fW\`XYb
: YfbYk U`X`ni`j Yf`Y[Ybž`i a`X]Y`bch'k YbX][Y
<cW\gdUbbi b[gYfX`Y]hi b[`ni`]bghU``]YfYb"8]YgY`HfUggY`gc``g]W
nk]gW`Yb`XYb`C`fhghY]Yb`5bbYfcX`i bX`GhY]bVUW`YfghfYW_Yb`i bX
k ØfXY`VYXYi hYbž`XUgg`ZUgh`nY\`b`<Y_hUf`K U`XZÄW`Y`gck]Y
nU\`fY]W`Y`U`hY`6Äi a`Y`[YfcXYh'k YfXYb`a ØgghYb"8]Y`GhUXh
;]Y» Ybž`X]Y`j]Y`Y`]fYf`K UbXYfYf`i bX`Gdcfh`Yf`]b`X]YgYb`K U`X
YbhgYbXYhž`nY][hY`g]W`VYgc`f[h`ØVYf`X]YgY`9bhk]W`i b[Yb"

8]Y`5V\c`ni b[`i bX`]fY`6YXYi hi b[

⇒ Y]bYf`GhY``i b[bU\`a Y`XYf`GhUXh'k]fX`YI`d`n]h`Ui ZX]Y': c`[Yb`XYf
[Yd`UbhYb`F`cXi b[`]b[Yk]YgYb"7`Ui X]U`6c`Yž`X]Y
A U[]ghfUhggd`fYW`Yf]bž`Yf`Äi hYfhž`XUgg`%\$\$`A YhYf`VfY]hY`GW\`bY]gYb
ØVYf`Y]bY`@Äb[Y`j cb`- &\$`A YhYfb`[YfcXYh'k YfXYb`a ØgghYb"
8]YgYf`a Ugg]j Y`9]b[f]ZZ`ZØ\fh`b]W`h`bi`f`ni`f`J`Yfb]W`hi b[`j cb`Yhk U
- ž&`<Y_hUf`XYg`K U`XYgž`gcbXYfb`\`ÄhY`Ui W`[fUj]YfYbXY

5i gk]f_i b[Yb'Ui ZXUg'² _cgmghYa "'8]Y'GhUXh\YVh\Yfj cfž'XUgg
X]Y'FcXi b['U'hYf'@Ui VVUi a UfhYbž'XUfi bhYf'%' \$!'V]g'%' \$!'Å\ f][Y
FchVi WXYb'i bX'Gh]Y'Y]WXYbž'b]Wkh'bi f'j]Y'Y'VYXfc\hY'5fhYb']\fYg
@VYb'gfUi a g'VYfUi Vhž'gcbXYfb'Ui W'XYb'?'`]a UgW'i hn']b'XYf
FY[]cb'VYY]bhfÅW'h][h"

8UfØVYf'\]bUi g'VYhcbh'X]Y'GhUXh';]Y»Ybž'XUgg'X]Y'FcXi b['j cf
U'Ya 'X]Y'Ø_c'c[]gW'k Yfhj c''ghYb'6YfY]WXY'XYg'K U'XYg'VYhf]Zzh"
5'hYž'bUhi fbU\Y'@Ui Vk Å'XYf'hfU[Yb'YbhgWXY]XYbX'ni f
V]c'c[]gWXYb'J]Y'ZU'h'VY]i bX'g]bX'XU\Yf'j cb'\YfUi gfU[YbXYf
6YXYi hi b['ZØf'X]Y'I a k Y'h"'8]YgY'6Åi a Y'g]bX'b]Wkh'bi f'k]W'h][
ZØf'X]Y'DZUbnybk Y'hž'gcbXYfb'V]YhYb'Ui W'gY'hYbYb'H]YfUfhYb
Y]bYb'i bYfgYhn']WXYb'@VYb'gfUi a "

8]Y'GhUXh'Åi »Yfh'6YXYb_Yb'VYnØ['W'XYf'a Ugg]j Yb'9]b[f]ZY']b
XYb'K U'Xž'X]Y'Xi fW'X]Y'FcXi b['i bX'X]Y'XUa]hj YfVi bXYbYb
J YfÅbXYfi b[Yb'XYg'K U'X_']a Ug'i bX'XYg'K UggYf\Ui g\U'hg
YbhghY\Yb'k ØfXYb"'GY'Vgh'X]Y'BUWVUf_ca a i bYbž'X]Y'g]W
[Y[Yb'X]Y' [Yd'UbhYb'A U»bU\ a Yb'Ui g[YgdfcWXYb'\UVYbž
i bhYfghØhnYb'X]Y'GhUXh]b']\fYa 'J cf\UVYb"'G]Y'ZcfXYfb'j cb
5a df]cb'_cb_fYhY'5'hYfbUh]j Yb'ni f[Yk Å'hYb'HfUggYbZØ\fi b["

? f]h]_ 'i bX'Ni gUa a YbUfVY]h

;]Y»Yb'nY][h'g]W'cZYb' [Y[YbØVYf'XYf'6]'Xi b['j cb
5fVY]hg[fi ddYb'a]h'XYb'BUWVUf_ca a i bYbž'X]Y' [Ya Y]bgUa
@Øgi b[Yb'YfUfVY]hYb'a ØW'hYb"'8]Y'GhUXh'Vf]b[h'ni a '5i gXfi W_ž
XUgg'Y]bY'_cbghfi _hj Y'Ni gUa a YbUfVY]h'g]bbj c'']ghž'k Ybb'Y]b
U'hYfbUh]j Yf'HfUggYbj c'fgW'U['YfUfVY]hYh'k YfXYb'_Ubb"'8]Yg
_ØbbhY'a Ø['W]WYfk Y]gY'XUni 'VY]hfU[Ybž'X]Y'k Yfhj c''Yb
K U'XVYghÅbXY'ni 'gW'ØhnYb"

8]Y'ØVYf[YcfXbYhY'6YXYi hi b['XYg'F\Y]b!A U]b!@]b_g'ZØf'X]Y
=bXi ghf]Y'i bX'X]Y'9bYf[]Yk YbXY']gh'XYf'GhUXh'VYbZU'g'VYk i ggh"
;]Y»Yb'j YfZc'[h'gY'Vgh'Y\ f[Y]n][Y'?'`]a Un]Y'Yž'i bX'X]Y'GhUXh'k Y]»
i a 'X]Y'K]W'h][_Y]h'XYg'Dfc'Y_hg'ZØf'X]Y'Ni _i bZi'XYf
9bYf[]Yj Yfgcf[i b[']b'XYf'FY[]cb"'Hfc'h'XYf'6YXYb_Yb'VYnØ['W]
XYf'Ø_c'c[]gWXYb'GWÅXYb'g]Y'h'X]Y'GhUXh';]Y»Yb'X]Y

B c h k Y b X [_ Y] h Z Ø f Y] b Y b ' g c ` W X Y b ' ð Z f U g h f i _ h i f ! 6 U i g h Y] b "

N i g U a a Y b Z U g g Y b X ` n Y] [h ` X] Y ` U _ h i Y ` ` Y ` 8 Y V U h h Y ` i a ` X Y b ` F ` \ Y] b !
A U] b ! @] b _ ` X] Y ` G d U b b i b [Y b ` n k] g W X Y b ` X Y b ` N] Y ` Y b ` X Y f
9 b Y f [] Y k Y b X Y ` i b X ` X Y b ` 9 f \ U ` h ` b U h Ø f `] W X Y f ` F Y g g c i f W ` b " ` 8 Y f
: Y f b Y k U ` X ž ` a] h g Y] b Y f ` k i b X Y f j c ` ` Y b : ` c f U ` i b X : U i b U ž _ Ø b b h Y ` V Y]
X Y f ` i a g Y h n i b [` X Y f ` D ` À b Y ` g h U f _ ` V Y Y] b h f ` À W X h] [h ` k Y f X Y b " ` 9 g ` V ` Y] V h
n i ` \ c Z Y b ž ` X U g g ` Y] b ` K Y [` [Y ž b X Y b ` k] f X ž ` X Y f ` g c k c ` ` X] Y
Y b Y f [Y h] g W X Y b ` 6 Y X Ø f Z b] g g Y ` U ` g ` U i W X ` X Y b ` G W X i h n ` X Y f ` 6] c X] j Y f g] h ` À h
] b ` X] Y g Y f ` F Y [] c b ` V Y f Ø W _ g] W X h] [h "

: Ø f ` j] Y ` Y `] g h ` X Y f : Y f b Y k U ` X ` Y] b ` C f h ` X Y f ` 9 f \ c ` i b [` i b X
B U h i f j Y f V i b X Y b ` \ Y] h ` ` i a g c ` V Y X U i Y f `] W X Y f `] g h ` X Y f ` d c h Y b n] Y ` ` Y
J Y f ` i g h ` Y] b Y g ` H Y] g ` X] Y g Y g ` k Y f h j c ` ` Y b ` B U h i f f U i a g " ` 8 Y f ` 8] U ` c [`
n k] g W X Y b ` X Y b ` G h U X h j Y f k U ` h i b [Y b ` i b X ` 5 a d f] c b _ ` Ø b b h Y
Y b h g W X Y] X Y b X ` X U Z Ø f ` g Y] b ž ` k] Y ` X] Y g Y g ` D f c V ` Y a ` [Y ` Ø g h ` k] f X ž
k ` À \ f Y b X ` X] Y ` < Y f U i g Z c f X Y f i b [Y b ` X Y f [Y [Y b k ` À f h] [Y b ` i b X
_ Ø b ž] [Y b ` 9 b Y f [] Y d c `] h] _ ` U b [Y [U b [Y b ` k Y f X Y b "

8] Y ` U _ h i Y ` ` Y b ` 9 f Ø f h Y f i b [Y b ` n i ` X Y b ` i a k Y ` h U i g k] f _ i b [Y b ` i b X ` X] Y
G i W X Y ` b U W X ` 5 ` h Y f b U h] j Y b ` g c ` ` h Y b ` i b g ` U ` ` Y ` V Y k Y [Y b ž ` Ø V Y f ` X] Y
6 Y X Y i h i b [` i b g Y f Y g ` B U h i f Y f V Y g ` b U W X n i X Y b _ Y b ` i b X ` X U Z Ø f ` G c f [Y
n i ` h f U [Y b ž ` X U g g ` Y g ` U i W X ` Z Ø f ` n i _ Ø b ž] [Y ` ; Y b Y f U h] c b Y b ` Y f \ U ` h Y b
V ` Y] V h "

8] Y ` 8] g _ i g g] c b ` i a ` X Y b ` F ` \ Y] b ! A U] b ! @] b _ ` k] f ž ` h ` U i W X : f U [Y b
V Y n Ø [`] W X ` X Y f ` 9 b Y f [] Y k Y b X Y `] b ` 8 Y i h g W X ` U b X ` U i Z ` ð ` X Y b ` ` Y h n h Y b
` \ \ f Y b ` \ U h ` X] Y ` 6 i b X Y g f Y d i V `] _ j Y f g h ` À f _ h ` U i Z ` Y f b Y i Y f V U f Y
9 b Y f [] Y b ` [Y g Y h n h ž ` i a ` X] Y ` 5 V \ ` À b [] [_ Y] h j c b ` Z c g g ` Y b ` 6 f Y b b g h c Z Y b
n i ` f Y X i n] Y f Y b ` i b X ` X] Y ` ? `] a U n] Y ` Y ` n i ` Y f f Y] W X Y b " ` J c f ` X] Y g Y a
<] b h Y f [f i b X `] g h ` X Y f ` H f U b g d c f h j c b ` K] b X g h f c a ž `] b g V Y g c b X Y f Y ` U i g
C Z g \ c f Y ! 5 b ` U [Y b `] b ` X Y f ` B c f X g Y Y ž ` j c b ` n Y b h f U ` Y f ` 6 Y X Y i h i b [" ` 8] Y
U _ h i Y ` ` Y ` G] h i U h] c b ` n Y] [h ž ` k] Y ` _ c a d ` Y I ` i b X ` i a g h f] h h Y b ` X] Y
I a g Y h n i b [` g c ` W X Y f ` ð Z f U g h f i _ h i f d f c ` Y ` h Y ` g Y] b _ ` U b b ž ` k Y b b ` g] Y] b
Y a d Z] b X `] W X Y b ` ^ 2 _ c g m g h Y a Y b ` g h U h ž] b X Y b "

2 _ c ` c [] g W X Y ` 5 i g k] f _ i b [Y b ` i b X ` a Ø [`] W X Y
5 ` h Y f b U h] j Y b

8]Y`dchYbn]Y`Y`NYfghØfi b[`XYf`U`hYb`@Ui Vk Å`XYf`ja `: YfbYk U`X
k]fZh`b]W`h`bi`f`i`a`k`Y`hgW`Ø`hnYf]gW`Y`6`YXYb`_Yb`Ui`Z`gcbXYfb`Ui`W`
: fU[Yb`ni`f`Ø`c`c`[]gW`Yb`B`UW`U`h`[_Y]h`]bg[YgUa`h`5`h`Y`K`Å`XYf`
g]bX`b]W`h`bi`f`k`]W`h`[`ZØf`X]Y`6]cX]j Yfg]h`h`z`g]Y`gd]Y`Yb`Ui`W`Y`]bY`
YbhgW`Y]XYbXY`F`c`Y`]b`XYf`?`c`Y`b`g`hc`Z`gdY]W`Yfi`b[``8]Y`
NYfghØfi b[`X]YgYf`K`Å`XYf`_Ø`bbhY`X`U`Y`f`k`Y]hfY]W`YbXY`bY[Uh]j`Y`
?`cbgYei`YbnYb`ZØf`X`Ug`c`_U`Y`?`]a`U`i`bX`X]Y`6]cX]j Yfg]h`h`h`UVYb`
5i`W`j`]Y`Y`6Øf[Yf`Åi`»`Yfb`]`f`Y`6`Ygc`f[b]g`Ø`VYf`X]Y`5i`gk`]f`_i`b[Yb`ž`
X]Y`gc`W`a`Ugg]j`Y`9]b[f]Z`Y`]b`X]Y`B`U`h`i`f`a`]h`g]W`V`f]b[Yb`
_Ø`bbhYb`"

8]Y`GhUXh`;]Y»`Yb`i`bX`Ub[fYbnYbXY`?`ca`a`i`bYb`n]Y`Yb`X`U`f`U`i`Z`U`V`ž`
5`h`Y`fb`Uh]j`Yb`ni`f`[Yd`U`b`h`Y`b`H`f`UggYb`ZØ`fi`b[`ni`Z]bXYb`"

8]g`_i`gg]cbYb`i`a`U`h`Y`fb`Uh]j`Y`H`f`UggYb`_c`ff]X`c`f`Y`ž`X]Y`k`Yb][Yf`
G`W`Å`XYb`j`Yfi`fg`U`W`Y`b`k`Ø`f`X`Y`b`ž`g]bX`V`Y`f`Y]hg]a`:`Ub[Y`9]b`
6Y]gd]Y`_Ø`bbhY`X]Y`J`Y`f`Y[i`b[`XYf`?`U`V`Y`i`b`h`Y`f]f`X]g`W`]b`k`Yb][Yf`
g`Y`bg]V`Y`b`; YV]Y`h`Y`b`g`Y]b`8`U`V`Y]`]gh`X]Y`6`U`Ub`W`i`nk`]g`W`Y`b`X`Y`a`
X`f]b[Yb`XYb`6`Y`X`U`f`Z`U`b`Y`fb`Yi`Y`f`V`U`f`Y`f`9`b`Y`f[]Y`i`b`X`X`Y`a`G`W`i`h`n`
b`U`h`Ø`f`]W`Y`f`@`Y`V`Y`b`g`f`Åi`a`Y`Y]b`Y`g`W`k`]Y`f][Y`ž`U`V`Y`f`b`c`h`k`Y`b`X][Y`
<`Y`f`U`i`g`Z`c`f`X`Y`fi`b[``"

[YgW`Å`hnhY`i`b`h`Y`f`gh`Ø`hni`b[`Xi`f`W`X]Y`
6Yj`Ø`_Yfi`b[

5i`Z`f`Y[]cb`U`Y`f`9`V`Y`b`Y`k`]f`X`X]Y`B`c`h`k`Y`b`X][_Y]h`Y]b`Y`g`i`a`Z`U`gg`Y`b`X`Y`b`
8]U`c[g`V`Y`h`c`b`h`ž`i`a`X]Y`6Yj`Ø`_Yfi`b[`]b`X`Y`b`D`f`c`n`Y`gg`
Y]b`ni`V`Y`n]Y`Y`b`9]b][Y`i`a`Z`f`U[Yb`]b`X`Y`f`F`Y[]cb`Y[Yb`b`U`Y`ž`X`U`gg`
j]Y`Y`6Yj`Ø`_Yfi`b[ghY]`b`Y`a`Y`f`J`Y`f`gh`Å`b`X`b]g`ZØf`X]Y`9`b`Y`f[]Y`k`Y`b`X`Y`
U`i`Z`f]b[Yb`ž[`Y]W`n`Y]h][`Y`X`c`W`Y]b`Y`b`f`Y`gd`Y`_`h]c`Y`b`i`a`[Ub[`a`]h`
X`Y`f`B`U`h`i`f`Z`c`f`X`Y`fb`9]b`a`Ø[`]W`Y`g`G`d`U`b`b`i`b[g`Z`Y`X`Y`b`h`g`h`Y`h`Y]Y`f`
nk`]g`W`Y`b`]b`X]j`]X`i`Y`Y`b`i`b`X`[Y`a`Y]b`g`W`U`Z`h]W`Y`b`b`h`Y`f`Y`gg`Y`b`8]Y`
i`b`h`Y`f`gh`Ø`hni`b[``c`_U`Y`f`b`h]Uh]j`Yb`ni`f`9`f`Z`c`f`g`W`i`b[`i`b`X`i`a`g`Y`hni`b[
b`U`W`U`h`[Yf`5`h`Y`fb`Uh]j`Yb`_Ø`bbhY`b]W`h`bi`f`Y]b`Y`b`HY]`X`Y`f`
Ø`Z`Y`b`h]W`Y`b`G`c`f[Yb`a`]b`X`Y`fb`ž`g`c`b`X`Y`fb`Ui`W`X`Y`b`g`c`n]U`Y`b`
Ni`g`U`a`a`Y`b`U`h]b`X`Y`f`F`Y[]cb`g`h`Å`f`_Yb`"

b]h]Uh]j`Yb`k`]Y`X]Y`j`cb`X`Y`b`U`W`h`V`Y`h`f`c`Z`Y`b`Y`b`?`ca`a`i`b`Y`b`_Ø`bbhY`b`

XUZØf'gcf[YbžXUgg'6YXYb_Yb'XYf'6Yj Ò_Yfi b['VYggYf
k U\ f[Ybca a Yb'k YfXYb'i bX'[Ya Y]bgUa '@Øgi b[Yb'YbhghY\Yb"
⇒'5bVYhfUW h'XYf'?`a U_f]gY'gh'Yg'i bYf'Àgg`]Wž'XUgg'U`Y
GhU_Y\c`XYf' j cb'XYf'Dc`h]_V]g'ni f'N]j]'[YgY`gW UZh' 'Ub'Y]bYa
GhfUb['n]Y\Yb"

8YhU]`g

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