

# >Y Ybh\_ YnÅg A chj 1Wj g`Yj Å`



A chj 1Wj g`Yj Å`! ? YnXÅg  
[čřč]

bÅa Yh  
GΛf [YΛfhf' < Yffž

ž  
< ]j Uu cgž ZÅFZ] VĚa nYhž]ga YfYhYb`bÅj

GΛf [YΛfhf': fU ž

ž  
< ]j Uu cgžb ] VĚa nYhž]ga YfYhYb`bÅj

GΛf [YΛfhf'8Ua Yb`i bX' < YffYbž

# ž  
< ]j Uu cgž VĚa nYhbYj Y Åg`bYa Y ]ga YfYhYb

GΛf [YΛfhf'8Ua Yb`i bX' < YffYbž

ž  
< ]j Uu cgž hÖW VĚa nYh

GΛf [YΛfhf'8Ua Yb`i bX' < YffYbž

# ž  
< ]j Uu cgž VĚa nYhY\_`bYj Y Åg`bYa Y`h'`YgYb ]ga YfYhYb

GΛf [YΛfhf' < Yff`Gwa ]Xhž

ž  
< ]j Uu cgž ZÅFZ] VĚa nYhž]ga YfhibÅj

GΛf [YΛfhf': fU `Gwa ]Xhž

ž  
< ]j Uu cgžb ] VĚa nYhž` \ ½Už]ga YfhibÅj

GΛf [YΛfhf': fU `Gwa ]Xhž

ž  
< ]j Uu cgžb ] VĚa nYhž`Y[ mYXØ ½`I ž]ga YfhibÅj

GΛf [YΛfhf': fU `Gwa ]Xhž

ž  
< ]j Uu cgžb ] VĚa nYhž]ga YfhibÅj ž]ga YfYhYb`VgU ½] ½`Udch

@]WYf' < Yff`Gwa ]Xhž

ž  
? Yj ÅgVÅ` ]j Uu cgža ½`fÅ[ YW`I hUj Ub`Øn`Yh`\_`UdVg`Uh

< ]fa ]hVyk YfVY]W`a ]W`i a `X]YGH`YUg`"žX]YG]Y]b  
""]j ca ""]U g[ YgWf]WYb` \UWb"

.....  
.....  
GhubXUX`Zcfa i `UY[ mc`mub` ½` ½`fU`Ua YmbY\_`U` ]fYhÅg`hY[ mÖg] ½`Vub`j U[ mia U[ Uh]bVub` ½`hUX

6Yri [ bΛa YbX`U Z= fY`5bnY][ YU Z`"gWfY]WY]W  
=>bYb`"

.....  
GhubXUX`Zcfa i `UY[ mcb`]bY` ]fYhYh`i ½` ½`fUj ½`Ugnc` ½`\_cf

>Y Ybh\_YnÅg

A chj 1Wj g`Yj Å



6Yri [ bYa YbX`U Z=fY'5bnY][ Y]b`""j ca`""

GHUbXUFX`Zcfa i `U`UbbU\_`Ya U[ mUf`1/2`1/2`U`Z`c[ m`lc``hU`1/2`hUX`Ua Y[ \]fXYh`hi`1/2`1/2`gh

A ]h[ fc>Ya `bhYfYggY`\\ UMY]W`=fY'5bnY][ Y`Zf`X]Y Dcg]h]cb`Y]bYgYfZ`A`fYbYb`""j]b`XYf`5i`g] UMY`""j ca`"" [Y YgYb"

GHUbXUFX`Zcfa i `UY[ mic`mb`1/2`1/2`g]U`Y`Ybh\_YnÅg\_cfz`Ua Y`mYhY[ mia U[ Uh]bVUb`j U[ m`\\Yf]`UdVUb`~`1/2`1/2`

5i ZXUbj cb`=bYb`U`i`g] Yg]Wf]WYbY`GH`Y`YbUb[ Wch VYk YfVY]W`a`jW`[ YfbyZk Y]`""

GHUbXUFX`Zcfa i `U`1/2`1/2`Y`Ybh\_YnÅg\_cf

=W`VYk YfVY`a`jW`i`a`X]Y`GH`Y`YUg`""

GHUbXUFX`Zcfa i `U`1/2`1/2`Y`Ybh\_YnÅg\_cf

8YfnY]hUfVY]hY`jW`Zf`""Ni`a`Y]bYb`5i`Z] UMYb`nÅ`Yb`""

Bm]h`i`a`cbXUh`Åbh`\\Ugnb`1/2`1/2`U`Y`Yb`Y[ ]`Zc[ `U`\_cn]g]`1/2`Udch`Yf`1/2`1/2`U

A chj 1Wj g`Yj Å!`¥fj`YÅg

[`ò`ò]

bÅa`Yh

8]Y`GH`Y`Y]ghZf`a`jW`j`cb[ fc>Ya `bhYfYggY`Zk Y]`""

5`bbU`\_`U`a`Y[ a`U[ mUf`1/2`1/2`U`Z`c[ mia ]Åf]gnYfYbÅX`Uh`UXctria`i`b`\_`1/2`

;`Yfbyk`Ø`XY]W`Zf`G]Y`UfVY]h]bzi`a`""

5`bbU`\_`U`a`Y[ a`U[ mUf`1/2`1/2`U`Z`c[ mia ]Åf]gnYfYbÅX`Uh`UXctria`i`b`\_`1/2`

Ni`a`Y]bYb`GH`f`\_`Yb`nÅ`Yb`""

5`Y[ Zcbhcg]W`h`U`Xcbg]1/2`U]X`Yf`1/2`1/2`U`\_`cf

=W`X`Yb`\_`Y`Z`ri`a`Y]bYb`GWk`ÅWYb`nÅ`Yb`""5`VYf`jW`UfVY]h`XUf`Ubz`a`jW`j]b`X]Yg]a`6`YfY]W`#X]YgYb`6`YfY]WYb`ri`j`YfVYggYf`b"

I`hU`1/2`U[ mYb[ YgÅ[ Y]XfYz`XY`UbbU`\_`a`i`hU`1/2`U`Z`c[ m]gnYfYbÅ`YnY`\_`Yb`U`hYfØ`Yh`\_`Yb`ZY`^`Xb]

# >Y Ybh\_YnÅg A chj 1Wj g`Yj Å`



# ..... "" =W Y][ bY'a ]W ZØf X]YgY Dcg]hcbžk Y]""  
5 bbU\_`Yf1/2U\c[ mia ]h`j U[ mĭ`Y Ybh\_Yn `U'a i b\_1/2U

.....  
Nk Uf`\_Ubb`jW`\_Y]bY`9fZU fi b[ `]b""j cfk Y]gYb/XUZØf  
\UW]W""  
5 a ]\_cf'a Å[ `bYa `Xc`[ cnh1/2Uh`UXcthiYfØYHbžXY`gnYfYbÅX`VYa i hUhb]`U'a 1/2HfØYH`\_Yb`gnYfnYthiUdUgnUUhU]XUh

..... #  
A Y]bY`VYfi Z]WYb`E i U]Z]\_Uh]cbYb`YbHgdY`WYb`XYb  
5 bZcfXYfi b[ Yb`=fYgI` bhYf b\A` Ybg'  
5 bbU\_`U`Yf1/2U\c[ mia ]`nYb`\_ÅdYggÅ[ Y`\_hYgnbY`\_U`\_U'a Ugg]1/2U'a i b\_1/2U

..... # # ..... ""z  
K Å`fYbX`a Y]bYf`NY]hUg""\UW]W`a Y]bY? YbbHb]ggY  
]b""j YfVYggYfh#Yfk Y]HfH#] YfH]Yzh'  
9[ miUXcthiYfØYHb`gnYfnYthiUdUgnUUhVYa i hU1/2U`Åg`U`\_ÅdYggÅ[ `Ö`\_ÅdYggÅ[ Y`\_#i X1/2gYgnÅgÅfY

.....  
A Y]b: UW[ W]Yh]gI""  
5 bbU\_`Yf1/2U\c[ mia Ym]`\_HfØYHb]` UbbU\_`U`Y[ bU[ mcW`YfYXa` ÅbmY]XžhUdUgnUUhU]X

.....  
K Å`fYbX`a Y]bYf`5fVY]hV]""V]b`]W`]b""g\ f  
gUW`\_i bX][ `]Yk cfXYb""  
9[ miUXcthiYfØYHb`gnYfnYthiUdUgnUUhVYa i hU1/2U`Åg`U`\_ÅdYggÅ[ `Ö`\_ÅdYggÅ[ Y`\_#i X1/2gYgnÅgÅfY

..... ž  
5i W`]b`gfYgg][ Yb`G]h Uh]cbYb]`YfbUW`Ågg][ Y]W`b]W]h  
Gcf[ ZUhi bX;` YbU ][\_Y]h`8U`Yf`k`ÅfY]W`VYgcbXYfg  
[ Y][ bYhZØf X]Y`5bZcfXYfi b[ Yb`U`g""  
5 bbU\_`Ya U[ mUf1/2U\c[ mia ]Åfh`YbbÅ`ĭ`Uh`1/21/2fU`\_cf1/2V]`a i b\_`U`UdUgnUUhU]X`U`Ud`Yb

.....  
5i W`i bhYf`6YUgi b[ V\UHY]W`\c`Y  
E i U]hÅgg]UbXUfXgVY]"  
5 bbU\_`ÅfnÅ`\_Y`HÅgÅfYž\c[ m\_ÅdYgj U[ mia U[ Ug][ ÅbnY`\_YhiH`a Ugnĭ`\_`ÖfbnYnYH`Yb`Xc`[ cnb]

.....  
Gca ]hk ØfXY`g]W`ZØf`a ]W`X]Y;` YY[ Yb\Y]hYf[ WYbž  
a Y]bY`=bhYfYggYb`a ]hX]YgYf`Dcg]hcb`ni`j`Yf`\_bØdZYb"  
5 bbU\_`VYa i hU1/2U\c[ mignYa`Å`mYgYb`]g`bU[ mc b`ÅfXY`\_`Xgn`U'a i b\_`U]f`Yb

>Y Ybh\_ YnÅg

A chj 1Wj g`Yj Å



.....  
.....  
.....

=W ]bhYfYgg]YfY'a ]W [ UbnVYgcbXYf gZØ' X]YgY'GH`Yi bX  
k ØXY'a ]W g\ f ØVf' X]Y; YY[ Yb\ Y]hZ'Yi Ybž]b XYf  
Ni gJa a YbUFVY]ha ]h= bYb'a Y]b'K ]ggYb'ri Yf'k Y]hYfb"

5 bbU\_ VYa i hU]g]UŁ\c[ mgnYa Å nYgYb' ]g'bU[ ncb' ÅfXY\_` Xgn'U'a i b\_U]f]b

..... ž  
.....  
.....

K ]Y'G]Y'a Y]bYa `VY][ YZØ[ hYb' @YWybgU ZYbYb\ a Yb  
\_ØbbYbžYb]gdfYWyb'a Y]bY'9fZU fi b[ i bX'a Y]bY  
E i U]Z\_ U]cbYb'XYb'5 bZcfXYfi b[ Yb'X]YgYf' Dcg]h]cb"

5 n'ØbÅ YfU'ncX\_] \Uo[ gÖnncn]gU\_cf' Åg'UbbU\_ ÅfnÅ\_ Y hYhÅgÅfYz\c[ mia Ybbr]fY]'`YbY\cmn]X' Yn'U'a i b\_U

.....  
..... ž  
.....  
.....

A Y]bY'XYfnY]h][ Y'Dcg]h]cb'Ug'''V]Yh]ha ]f' X]Y  
; YY[ Yb\ Y]hž]b'Y]bYa `Uogdfi Wg c`Yb'i a ZYX'ri  
UFVY]h]bžk c'X]Y'Yb[ Y'Ni gJa a YbUFVY]ha ]ha Y]bYb  
? c`Y[ Yb'i bj Yfn]W]hUf' ]gž'i a j YfY]bVUf]hY': f]g]Yb  
Y]bri `U]h]b"

5 bbU\_ `YÉf]g]UŁ\c[ mia ]'nYb' h X]g]gU'Y]f]h]Y' U'Y'Yb'Y[ ]'a i b\_ ]X'gcf]b

..... ž  
.....

Ni gÅm]W'ri `a Y]bYb'J YfU]k cfh]W\_ Y]h]b'Ug'''\UWY  
]W'U W': Å\[\_]Y]h]b' ]b''''Yf'k cfVYb"

9i hfU\_ ÅdYg]hÅgY\_#i X]g`YÉf]g]UŁLa ]\_YhU'Y'Yb'Y[ ]' ½ ]gcXcb' \_YfYgn]Ø' gU'Y]f]h]Y' Ågž'La ]\_bYa `ZY'hÅhYbØ'ZØ[ [ bY\_  
ØgnY'gncfcg]b'U'Zc[ `U\_cn]g]`dcn]ÉYi XXU

A chj 1Wj g`Yj Å ! ? ÅdYggÅ[ Y\_#\_ ÅgngÅ[ Y\_  
[ØrØ]

bÅa Yh

..... ž  
.....

'''']gha Y]bY'A i hYf'gdfUWY/XUfØVf `]bU' g]gdfYWY  
]W''''

5 n'U]b]b]nY'j YX'Åg'Uh'Y[ nÅV'Zc`mÅ\_c]b]t]b'VYgnÅ'h]b]nY'j Y\_`YÉf]g]UŁ

=W ] YfZØ[ YØVf' g\ f [ i hY? Yb]b]b]g]gY' ]b''''

B Ya `U]b]b]nY'j ]žXY'a U[ U]g]gn]b]h]b'VYgnÅ'h]b]nY'j Y\_`YÉf]g]U

=W VYg]h]nY'gc` ]XY; fi bX\_ Yb]b]b]g]gY' ]b''''

B Ya `U]b]b]nY'j ]' Åg\_ØnÅdgn]b]h]b'VYgnÅ'h]b]nY'j Y\_`YÉf]g]U

=W ] YfZØ[ YØVf''''>U'fY'9fZU fi b[ `Ug''''

9[ m]U]c]h]Øn'Yh] hYfØ'Yh]b'gnYfnY]h]i]U]d]U]g]h]U]U]U]X`YÉf]g]UŁ

=W ] YfZØ[ YØVf' [ i hY? Yb]b]b]g]gY' ]b''''

Gn]Å' Éi [ ÅdYg]gncZj Yf']ga YfYh\_ VYa i hU]g]U

# >Y Ybh\_ YnÅg A chj 1Wj g`Yj Å`



⇒W`XYb\_YZ`XUggj]W`ØVf`XjY`[ Yj][ bYh`? ca V]bUjcb  
U g`"i bX`"j YfZØ[ Y`

5 bbU\_`YfYg]Uz`c[ mia Ybom]fY`\_jY[ nYbgÖnenc]tU`\_U`\_ÅdYggÅ[ Y]X

U g] YnY]WbYh`? ca a i b]\_Uj]cbgZÅ][\_Y]hYb

⇒bZcfa 1Wj`\_`a Y[ cgn]U`Åg]V]ncbncg`Xc`[ c\_`Y`a U[ nUf]U`U`\_c`\_Å[ ½]bU\_

gW`i ggZ`[ Yf bXYg]8Yb\_Yb

6]ncbncg`Xc`[ c\_`a Y[ Åf]Åg`Åg[ ncf]g`Åg`UÅ`\_cbm]Y`a U[ nUf]U`U`

`c[ ]gWYg]8Yb\_Yb

5 n`Y`\_ÅdnY`ÅgY`#ChYh`\_dfV]h`Åg`f`\_½[ cbXc`ha`I`Xcb]j`U`i`gnYf`Ygn]Åg]Z`Øgg]YfU`\_½]U

UbU`n]gWY: Å][\_Y]hYb

? ÅngÅ[ `U`Xc`[ c\_`fÅgn`Yh]g`Åf]Å`\_Y`ÅgÅfY

`c\`Y`gcn]UY? ca dYhYbn

5`\_c`\_Å[ ½`\_U`j`U`i`\_UÅ`\_cbm]Y[ nØ]h`\_`\_ØXÅg`Åg`\_ca`a`i`b]\_½]fUj`U`i`\_ÅngÅ[

J`Yf`U`bX`i`b[ g] YgW]W

A`½]j`½]U`Uhc`\_U`j`U`i`\_UÅ`\_cbm]Ø`h`Yh`Åg]`\_ÅngÅ[`\_`

Df`Åg]b]U]cbgZÅ][\_Y]hYb

5`\_ÅngÅ[ z`c[ mgc`\_Ya`Vf`Y`\_h]i`\_ÅdYg`UÅ`\_cbnt]b`Y`\_U]Xb]`\_U]h`\_Ch`Yh]h

## A chj 1Wj g`Yj Å`! @Yn]½]½]g [ØfØ]

bÅa`Yh

⇒W`V]b`cW`a`chj`j]f]hi`bX`Z`fYi`Y`a`jW`U`ZX]Yj`j]Yg]h]h]Y`  
HÅh][\_Y]h`X]Y`a`j]f`Y]bY`Dcg]h]cb`j]b`⇒f`Ya`\_I`b]h]f]b]Y`a`Yb`  
V]Yh]b`k`ØfXY`

@Yn]½]½]g]½]a`Y[ ]ga`Åh]j`Yz`c[ mia`Ybom]fY`gnYfYh]Å`\_Uj`½]U`U]bU`\_Xc`[ c]nb]`

⇒W`g`Λ`Y`X]Y`bYi`Yb`5i`Z`U]W]b`#X]Yg]Y`Dcg]h]cb`U`g`  
k`j`\_ca`a`YbY`<`YfU`g`zcfXYfi`b[ z]U`ZX]Y]W`a`jW`Z`fYi`Y`

@Yn]½]½]g]½]a`Y[ ]ga`Åh]j`Yz`c[ mia`Ybom]fY`gnYfYh]Å`\_Uj`½]U`U]bU`\_Xc`[ c]nb]`

⇒W`k`ØfXY`a`jW`g`Λ`f`ØVf`X]Y;`Y`Y[`Yb`Y]h]Z`fYi`Yb`z`  
k`Y]h]fY`8`Yh]j`gri`\_XY`Dcg]h]cb`a`j]h`⇒b`Yb`dYf`g`Øb`jW`ri`  
V]Yg]f`W]W]b`"

@Yn]½]½]g]½]Z]j`j`\_`U]b]h]b]`Y[ m`\_Y`Y]h]gÅ[ Yg]b]h]f`\_Ch`

