

>Y Ybh_ YnĀg A chj 1Wj g`Yj Ā`



A chj 1Wj g`Yj Ā` ! ? YnXĀg

dcfh [½

DfYnUXc`GYb\cfz

7 Ufc`GYb\cfz

< j Uu cgz ZĀFZ] VĪā nYtż]ga YfYhYb`bĀj

fca 1b

Għa UY`8ca bž

DfYnUXU`GYb\cfUž

7 UfU`GYb\cfUž

< j Uu cgz b] VĪā nYtż]ga YfYhYb`bĀj

Għa UrB`8cUa bšž

DfYnUXcfUŁ`GYb\cffUž

7 UfcfUŁ`GYb\cffUž

< j Uu cgz VĪā nYthbYj Y`Āg`bYa Y`]ga YfYhYb

Għa UY`8ca b#8cUa bšž

DfYnUXcg`GYb\cfYgž

7 Ufcg`GYb\cfYgž

< j Uu cgz hŌW`VĪā nYth

Għa U]`8ca b]ž

5`ei Ya`d cggU]`bhYfYggUfž

< j Uu cgz VĪā nYthY`_bYj Y`Āg`bYa Y`hY`YgYb`]ga YfYhYb

ab`Uhyb]U`W]`YghY`]bhYfYgUfž

DfYnUXc`Gf`G]j Už

7 Ufc`Gf`G]j Už

< j Uu cgz ZĀFZ]`VĪā nYtż]ga YfthbĀj

Għa UY`8ca bi`Y`DcdYgMž

DfYnUXU`Gf}`G]j Už

7 UfU`Gf}`G]j Už

< j Uu cgz b]`VĪā nYtż`\½Ugž]ga YfthbĀj

Għa UrB`8cUa bB`DcdYgMž

DfYnUXU`Gf}"}G]j Už

7 UfU`Gf}"}G]j Už

< j Uu cgz b]`VĪā nYtżY[mYXØ½Ī ž]ga YfthbĀj

Għa UrB`8ca b]`cUfB`DcdYgMž

DfYnUXU`Gf}"}G]j Už

7 UfU`Gf}"}G]j Už

< j Uu cgz b]`VĪā nYtż]ga YfthbĀj ž]ga YfYhYb`VgU ½]`½`Udch

Għa UrB`8cUa bB`DcdYgMž

>Y'Ybh_YnÅg A chj 1Wj g`Yj Å



DfYnUXc`J Êcf`G]j UZ
7Ufc`J Êcf`G]j UZ

8fU[B`5bXfY]`DcdYgWz

? Yj ÅgVÅ`j Uu cgza 1/2 fÅ[YWV`I HUj Ub`Øn`Yh]`_UdVgc`Uh

9i `[cgUf]U`XY`WbX]XUHu!a Y`Uc`Wf[c`XY`""ei Y`Zc]
Ubi bV]UXc`Ya `#bc`#bU`""Ya `""

8cfYgWgB`Ud`]WdYbfi `dcgh `XY`""dcghXY`WfY`Ua `i Uh`U
W/bc h]b B`df]b`]bhYfa YX]i `""Èb`XUfY`XY`""

GHubXUFX`Zcfa i `UY[mic`mub`1/2 1/2 fU]Ua Y`mbY`_U`]fXYhÅg`hY[m`Ög]1/2 Vub] U[mia U[Uh]bVub`1/2 hU

9gWY]c`Ya `fYgdcgU`Uc`UbÖbV]c`di V`]WUXc`Ya `#bc
#bU`""

J B`gW]i `Èb`Y[B`h fB`W`Ubi b i `dcghUhdY`""

GHubXUFX`Zcfa i `UY[micb`]bY`]fXYhYh]1/2 1/2 fUj 1/2 Ugn`1/2 cf

F YZ]fc!a Y`Uc`gYi `UbÖbV]c`Ya `#bc`#bU`""XUUXc`XY`""

: UWfYZf]fY`U`Ubi b i `8j g`X]b`X]b`XUUX`XY`""

GHubXUFX`Zcfa i `U`UbbU`_Ya U[mUf]1/2 1/2 UZ`c[m`lc``hU`1/2 hU`Ua Y[`]fXYhYh]1/2 1/2 gh

9i ``]c`gYi `UbÖbV]c`gcVfY`i a fU`""Yl dYf]YbY`""
bcfU`""YX]Åc`XY`""z`Y`hYb`c`[fUbXY`]bhYfYgY`bU
j U`U`

5a `V]h]hUbi b i `8j g`df]b`WfYV]i HU]i b`ca`W
Yl dYf]Yb B`Èb`Xca Yb]i `""Èb`bi a Bfi `""U`di V`]W`Y]`W
a UfY]bhYfYg`

GHubXUFX`Zcfa i `UY[mic`mub`1/2 1/2 fU`Y`Ybh_YnÅg`cfZ`Ua Y`mYhY[mia U[Uh]bVub] U[m`Yh]`UdVub`1/2 hU

J Yb`c`z`dcf`a Y]c`XYgU`WbX]XUHu!a Y`1/2 dcg]Åc
Ubi bV]UXUz`Vta`c`""

7i `XYcgW]h]bhYfYgUd`]WdYbfi `dcgh `XY`""gWg`U
WbWf`g`

GHubXUFX`Zcfa i `U`1/2 1/2 Y`Ybh_YnÅg`cf

9i `[cgUf]U`XY`WbX]hUHu!a Y`Uc`Wf[c`XY`""

5 `Xcf]`gB`Ud`]WdYbfi `dcn]`JU`XY`""

GHubXUFX`Zcfa i `U`1/2 1/2 Y`Ybh_YnÅg`cf

5 hi Ua Ybh`hfUMU`c`dUFU`""Y`gci `fYgdcbg]1/2 Y`dcf
""

a`b`dfYnYb`h`i`WfYn`dYb`h`i` ""]`fYgdcbgU]`]hB`]Y`a`Y`Y
]bW`X`""

B m]h`i`a`cbXU`h`Åbh`Ugnb]1/2 1/2`U`Y`Yb`Y[`]Zc[`U`_cn]1/2 1/2 Udch`YÈf]1/2 1/2 U

A chj 1Wj g`Yj Å!`¥fj YÅg

dcfh [1/2

fca 1/2

9gci `dUfh]W`Ufa Ybh`]bhYfYgUc`bYgY`hfUMU`c`
#Wf[c`z`Vta`c`""

G`bh]bhYfYgU`h`Èb`a`cX`gdW]U`XY`UW`gidcg`hXYcUfYW`""

5 bbU`_Ua Y[a U[mUf]1/2 1/2 UZ`c[mia]ÅfhgnYfYbÅX`Uh`UXct`h`i`b`_1/2

9i [cguf]U'XY'fUMU\UF'dUFU''''fbcA Y'XU'Ya dfYgUz
U'Za 'XY''''

5 'Xcf]'g3`i V'Yn'dYbfi 'Vta dUb]U'8j g'XYcUFVW''''

5 bbU_ 'Ua Y[a U[mUF'1/2]g]Uz\c[mia]ÅfHgYfYbÅX`Uh`UXcHia i b_1/2

A Yi g'dcbhcg'ZcfHY'g;c''''

Di bVM'Y'a YY'ZcfHY'g bh''''

5 ``Y[ZcbhcgUW`hi `UXcbg]1/2 U]X``Yf'1/2U_cf

9i 'X]f]U'ei Y'U'a]b\U'Öb]W]ZfU'ei YnU'Å#Ug'a]b\Ug
Öb]W]gZfU'ei YnU'g;c''''''''7 cbi Xcz'Yg'ci 'h'bh'U'Xc
a Y'cfU'f'bYg'Yf]g:'UgdYV'c'f]g''

5 'gdi bY'VB'g]b[i fi `#]b[i fY'Y'a YY'di bVM'gU'W#di bVM'
gU'Y'Yg'Y#j bh''''''''8 Uf]bh'Yb]cbYn'g3`Ëa Vi bB'3 YgW]
UW'g#UW'g'Y'UgdYV'W#UgdYV'W''

I HU'1/2U[mYb[YgÅ[Y]XfYz'XY'UbbU_ 'a i HU'1/2Uz\c[mgnYfYbÅ`YnY_ 'Yb`U'hYfØ'YH_ 'Yb`ZY^` Xb]

5 V'YX]hc'ei Y'gci]bX]W'Xc'dUFU'c'fUMU\c'dc]g''''

5 'Z]'dYf'g'c'UbU'dcf]j]hB'dYbfi 'UW'g'hd'cg]XYcUFVW''''

5 bbU_ ``Yf'1/2]g]Uz\c[mia]h`j`U[m'f`'Y'Ybh_ 'Yn` 'U'a i b_1/2U

9a VcfU'Yi 'b; c'h'Yb\U'Yi dYf]A'fV]U'Ub'hYf]cf'Ya ''''z'Yi
h]j Y''''

'ab'V] XU'Z'dhi `i]V'Bi 'Ua `c`Yi dYf]Yb B'Ub'hYf]cU'fB'Ëb
Xca Yb]i ``z'Ua 'Uj i h'c'hi]''''

5 a]_cf'a Å['bYa `Xc'[c'nf'1/2`Uh`UXc'hi'hYfØ'YH'bz'XY'gnYfYbÅX`VYa i HU'1/2U'U'a 1/2]hYfØ'YH_ 'Yb`gnYfnYthiHU'dU'gnHU'UH]XUH

A]b\U'gei U]Z]W'Å'Yg#Vta dYh'fV]U'g'dfcZ]gg]cbU]g
dUFV'Wa 'YgU'f'XY'U'z'fXc`Vta `Ug'bY'W'gg]XUX'Yg'XU
g U'Ya dfYgU''

7 U]Z]V'f]Y#5 V]]hB]Y'a YY'dfcZ]g]cbU'Y'g'Y'Xc] YX'Yg'WU'Z]
d'cf]j]h'V'f]b Y'cf`Vta dUb]Y]'8j g'

5 bbU_ 'U`Yf'1/2]g]Uz\c[mia]`mYb`_ÅdYggÅ[Y_`h'YgnbY_ 'U_ 'U'a Ugg]1/2U'a i b_1/2U

8 i fUb'Y'a Yi 'hYa dc`Vta c''''z'Yi 'UdYfZ]ÅcY]'#
Ud'fcZ] bXY]'#Yg'h'YbX]'#a Yi 'Vcb\W]Ya Yb'rc'Ya ''''

DY'dYf]cUXU'W'Ua ``i V'Uh'W''z'a]!Ua
Ëa Vi bB'3]h'Ëa Vc[B]h'f]h]bg'W'bc h]b YY'Ëb`Xca Yb]i ``''''

9[mUXc'hi'hYfØ'YH'b`gnYfnYthiHU'dU'gnHU'Uh'VYa i HU'1/2U'Åg'U_ÅdYggÅ['Ö`_ÅdYggÅ[Y_`#i X'1/2]gnYfnÅgÅfY

A]b\U'1/2Y'XY'YgdYV]U]nU'Å;c`Å''''#Gci
YgdYV]U]nUX'cfU'Ë'Ya ''''

8ca Yb]i `a Yi 'XY'V'U'h'3'Yg'Y''''

5 bbU_ ``Yf'1/2]g]Uz\c[mia]Y'n]_`hYfØ'YH'b`j`UbbU_ 'U`Y[bU[n'c'V'YfYXa ÅbmY]Xz'HU'dU'gnHU'UH]X

5 dYgU'f'XY'fUMU\UF'Ya #Vta ''''z'hc'f'Y]!a Y
Yi h'Y'a Ua Yb'h'Vta dY'h'bh'Y'a ''''

7 i 'hc'U'h'VB'Ua ``i V'Uh'Ëb`Xca Yb]i ``''Ua V'bd'f'U'h
W'bc h]b Y'Uj Ubg'U'h']'Ëb''''

9[mUXc'hi'hYfØ'YH'b`gnYfnYthiHU'dU'gnHU'Uh'VYa i HU'1/2U'Åg'U_ÅdYggÅ['Ö`_ÅdYggÅ[Y_`#i X'1/2]gnYfnÅgÅfY

5]bXU'ei Y'fUMU\U'Xc`Ya 'f]h'a c`UW`YfU'Xcz'Yi 'b; c
gci 'bY[][Ybh'Y'fUMU\c`Vta `dfY]g;c'z'g'YbXcz
dc'f'U'bc'z'UX'Yei U'Xc'dUFU'U'g'XYa U'XU'g'Xc'fUMU\c
Vta c''''''''

7 \]U'f`]U'hi bV]V'W'X`i V'Yn'Ëb'f!i b'f]h'a 'U'Yf'h'bi 'bY[]'Yn
UW'f'U'h'Y'U'a i bV]]'df]b'i fa U'fY'V'cb]g]XY'f'VB'U
dYf'g'c'UbU'dcf]j]hB'dYbfi `dcg] `XY''''

5 bbU_ 'Ya U[mUF'1/2]g]Uz\c[mia]Åf'h`Y'b'Å`'f` 'Uh`1/2`1/2]fU'_cf'1/2V]'a i b_1/2HU'dU'gnHU'UH]X`U'U'd'1/2

A chj 1Wj g`Yj Å

Gci `WdUh`XY`a UbHY`i a `Uhc`dUXf;c`XY`hfUMU`cz`
a Yga c`gcV`dfYgg;c`"

5 bbU_`ÅfnÅ_Y`HYÅGÅFYz`c[m_`ÅdYgj U[mia U[Ug][[ÅbnY_`YhHÅ UgnH_`_`ÖfbmYnYH`Yb`Xc`[cnb]

7\JUF`]`VW`X`i`WYn`g`V`dfYgji`bY`dchia`Yb`]bY`
g]UbXUFXY`Y`a`i`bV]`ZcUFHY`f]X]WYH`"

8 YgU`Zcfa`U`Yi``HYf]U`U`cdcfh`b]XUXY`XY`VzbVY]Uf`cg`
a`Yi`g]bhYfYggYg`Vta``YgU`Vc`cVWÅ;c`"

5 bbU_`VYa`i`HUh]g]VÅz`c[mignYa`Å`mYgYb`]g`bU[`ncb`ÅfXY_``Xgn`U`a`i`b_U]f]Vbh`

Df]b`i`fa`UFYU``Uj`YU`cW]h]Ugß`Vta`V]b`Xca`Yb]]`Y`a`YY`XY`
]bhYfYg]W`UWgh`cVWY`a`i`bVß`"

9i`HYb`c`YgdWYU`]bhYfYggY`Ya``#bc`#bU`""`Y`[`cg]Uf]U`
HYf`U`cdcfh`b]XUXY`#`WU`bW`XY`La`d`]Uf`a`Yi`g`
Vzb`VY]a`Ybhcg`Z`hfUMU`U`bXc`Ya``#bc`#bU`""`fbc`a`Y`XU`
Ya`dfYgU`"

5 bbU_`VYa`i`HUh]g]VÅz`c[mignYa`Å`mYgYb`]g`bU[`ncb`ÅfXY_``Xgn`U`a`i`b_U]f]Vbh`

5a`i`b`fYU`]bhYfYg]ß`""`]U`UdfW]U`ZcUFHY`a`i`h`
cdcfh`b]HUYU`#`Ubg]XY`U`Èa`]`Bf[]`Wbc`H]b`YY`i`Wß`bX`
dYb]fi``Vta`dUb]U`8j`g`"

7ca`c`dcXY`gYf`cVgYfj`UXc`bc`a`Yi``WffÉW`c`UbYi`cz`
Ua`]b`U`Yi`dYf]`ÅbV]U`Y`ei`U`]Z]WÅN]Yg`Vc`ffYgdc`bXYa`
Ucg`fYei`]g]HcgXYg]U`dcg]Å;c`"

5 n`ÖbÅ`YhfU`ncX`_]`Ub[`gÖ`ncn]g]U`cf`Åg`UbbU_`ÅfnÅ_Y`HYÅGÅFYz`c[mia`Ybbn]fY`]`YbY`cn]X`Yn`U`a`i`b_U`

8i`dß`W`a`fY]YgY`]X]b`7J`!i``U`U`U`h`Z`Yi`dYf]Yb`U`]`
W]Z]Vßf]`Y`a`YY`gY`dch]j`Yg]Wf]b`Y`cf`dcg]i`i`]"`

A`]b`U`dcg]Å;c`U`h`U``Vta`c`""`XY`#`Xc`#`XU`""`za`Y`
dfcdcfV]cbci`U`cdcfh`b]XUXY`XY`hfUMU`U`f`Ya``i`a`
La`V]YbHY`XY`[`fi`dc`XY`U`H`dfYgg;c`z`cbXY`Å`YggYbV]U`
gYf`WdUh`XY`hfUMU`U`f`Vta``Vc`Y`[`Ug]U`Z]a``XY`
Wa`df]f`dfUhcg`"

5 bbU_`YÉf]g]VÅz`c[mia`]`mYb`h`X]g]g]U`Vc`h]Y`U`Y`Yb`Y`[]`a`i`b_`X`gc`f]Vb`

Dcg]i``XY`""`cW`dU`h`U`""`a`!`U`cZ]f]hcdcfh`b]HUYU`XY`U`
i`WU`Èb]f]i`i`b`a`YX]i``gc`]V]HUb]h]Èb`WfY`gY`di`bYU`UW`Wb]i``
dY`i`Vf]i`Èb`W]dß`za`YX]i`i`bXY`YgY`YgYb`]U`gß`i`WYn]`
YZ]V]Vb]h]Èb`W]dß`dYb]fi`U`ZUW`ZU`ß`HY`f`a`YbY`cf]!`]a`]Hß`"

5`Åa`XY`a`]b`Ug]fYgdc`bg]U`]XUXYg`Vta`c`""`Z`Yi`
H]a`VÅa`XYgYbj`c`j`]\UW`]XUXYg`Vta`dYH`ÅbV]Ug`
Ya`""`"

9i`hfU_`ÅdYg]H`ÅgY`#`i`X]g]`YÉf]g]Uz`La`_]`YhU`Y`Yb`Y`[]`½`½`gc`Xcb`_`YfYgn]Ø`g]U`Vc`h]Y`Åg]La`_]`bYa`Z`Y`hÅ`YbØ`ZØ[]`bY_`
ÖggY`gncfcg]Ub`U`Zc[`U`cn]g]`dcnÉ]V]i`XXU`

DY`~`3]b[`ß`fYgdc`bg]U`]Hß`]Y`a`YY`W`""`Z`Ua``Vßdß`H`hXY`
UgYa`YbYU`]UW`]Hß`]Èb`Xca`Yb]i``""`"

A chj 1Wj g`Yj Å ! ? ÅdYggÅ[Y_#`ÅgnÅ[Y_` dcfh [½

A`]b`U`df]a`Y]fU`Èb[]`U`Å`""`za`Ug]H]a`VÅa`ZU`c`""`"

5 n`Ubn]UbnY`j`YX`Åg`U`h`Y`[`nÅV`Zc`mÅ`cbm]ub`VYgn`Å`hbmY`j`Y_`YÉf]g]U`

fca`]b`

@]a`VU`a`YU`bU]h]ß`YgY`""`Z`XU`f`j`cf`VYg]VZi`Yb]i`]"`"

9i`ZU`c`""`Vta`Zi`ÅbV]U`
Gci`Zi`YbHY`Ya`""`"

B`Ya`Ubn]UbnY`j`z`XY`a`U[`Ug]gn]bhYb`VYgn`Å`hbmY`j`Y_`YÉf]g]U`

Ghßd`3]bYg]VZcUFHY`V]bY`""`"

>Y Ybh_ YnÅg

A chj 1Wj g`Yj Å`



9i 'hYb\c`Vt`b\WV`a Ybhc`j]bhYfa YX]1/2c`XY`""

7i bcdWU`b]j Y`a YX]i`""

B Ya `UbntubnY`j`j`Åg`_`OnÅdgn]bhYb`YVgnÅ`hibnY`j`Y`_`Yf`1/2U

9i 'hYb\c`""Ubcg`XY`Yi dYf]A`B`V]U`XY`hfUMU`c`Ya
#`Vt`a`c`""

5a ""U`b]`XY`Yi dYf]Yb`B`f`b`Xca`Yb]i``""

9[miUXc]h]i`h`Yh`h`Yf`Ø`YhYb`gnYfnYh]h]U`d]U`gn]h]U`U`U]X`_`Yf`1/2U

9i 'hYb\c`Yi dYf]A`B`V]U`Ya`#`Vt`a`""

Gi bh]i`b`i`h`]`h]U`hcf`Yi dYf]ja`Yb]h]h`XY`""

Gn]1/2`h]i`[`ÅdYg]gnc`Z]j`Yf`]ga`YfYh`_`VYa`i`h]h]1/2U

9i 'UWYX]h`h`Yf`U`Vt`a`V]b]U`Å`c`UXYe]i`UXU`XY`""Y`""

7`cbg]X`Yf`V]B`XY`]b`Vt`a`V]b]U`]U`]X`YU`B`f`b`f`Y`""`j`""

5`bb]U`_`Yf`1/2U`1/2`c`[`mia`Yb]bm]fY`_]Y[`mYb]g`Ö`n`c`n`c`h]U`_`U`_`ÅdYggÅ[`Y]X

9i W`Ybh`Y`U`W]`]X`U`X`Y`XY`Vt`a`i`b]W]U`Å`c`

5V]`]h]B`]`XY`Vt`a`i`b]W]U`Y`Yi`W`Yb]h`Y`

=bZcfa`1Wj`_`a`Y[`cgn]h]1/2U`Åg`V]ncbncg`Xc`[`c`_`Ya`U[`nt]f`1/2U`U`_`c`_`Å[`1/2`b]U`

F`UW]c`V]B]c`XYXi`h]j`c`

;`3`b]X]fY`XYXi`W]j`B`

6]ncbncg`Xc`[`c`_`a`Y[`Åh`Åg`Y`Åg`[`n`c`f`g`Åg`U`h`Å`cbm]Y`a`U[`nt]f`1/2U`1/2U`

DYbg]La`Ybhc`i`[`]Wt`

;`3`b]X]fY`c`[`]Wt`

5`n`Y`_`ÅdnY`ÅgY`_`h]Yh`_`df`V]h`Åg`i`_`1/2`[`cb]Xc`h]a`i`Xcb]j`U`i`gnYf`_`Ygn]h]Y`Z`C`gnYf]U`_`1/2U`

<`UW]`]X`U`X`Y`g`U`b]U`h]j`W]g`

5V]`]h]B`]`U`b]U`]h]W`

?`ÅgngÅ[`U`Xc`[`c`_`f`Ågn`YhYg`Åh]Å`Y`ÅgÅfY`

6ca`fY`UW]c]b]La`Ybhc`j]bhYfdYggc]U`

5V]`]h]B`]`j]bhYfdYfgcb]U`Y`Vi`bY`

5`_`c`_`Å[`1/2`_`U`j`U`i`_`U`h`Å`cbm]Y[`m]h]a`_`_`Ö`Åg`Åg`_`ca`a`i`b]_`1Wj`f]U`j`U`i`_`_`ÅgngÅ[`

<`UW]`]X`U`X`Y`g`XY`bY[`c]V]U`Å`c`

5V]`]h]B`]`XY`bY[`c]V]U`Y`Y

A`1/2j`1/2`U`U`h`c`_`U`j`U`i`_`U`h`Å`cbm]h]Yh`Yh`Åg]`_`ÅgngÅ[`_`

<`UW]`]X`U`X`Y`g`XY`Vt`a`i`b]W]U`Å`c`

5V]`]h]B`]`f`b`U`X`f`Y`g]U`f`Y`U`V]B`f`Y`i`b`di`V`]W]U`f`[`"

5`_`ÅgngÅ[`Z`c`[`m]gc`_`Ya`Vf`Y`_`h]i`_`ÅdYg`U`h`Å`cbnt]b`Y`_`U`Xb]`U`h`_`h]Yh]h`

A`chj`1Wj`g`Yj`Å`!`@`Yn]1/2`1/2U`

d`c`f`h`i`[`1/2`

f`c`a`1/2`b`

9`g`c`i`_`a`i`]h`c`a`chj`U`Xc`Y`U`bg]Y]c`d`Y`c`h]f]U`U`_`c`

Gi`bh]Z`U`f`h`Y`a`chj`U`h`]`U`b]h]V]d`Yn`W`d`B`W`f`Y`U`M]j`]h]U`Y`U`

X]j`Y`f`g]Z]W]U`Xc`ei`Y`i`a`_`W]f`[`c`b`Y`g]U`Ya`d`f`Y`g]U`

j`U`f]U`h]B`d`Y`W]f`Y`i`b`d`c`g]h]b`Vt`a`d`U`b]U`8`j`g`a`]!`U`f`c`Z`f`]!`c`"

d`f`c`d`c`f`V]c]b]U`

@`Yn]1/2`1/2U`1/2`a`Y[`]ga`Åh`Y`j`Y`Z`c`[`mia`Yb]bm]fY`gnYfYh]Å`U`j`1/2`U`U`h]U`_`Xc`[`c`n]b]`

>Y'Ybh_YnÅg A chj 1Wj g`Yj Å`



9i j Y'c`Ug'bcj Ug'Uf]Vi]ÃÑYg#YgU'dcg]Ãc`Vta c
i a `Yi W`Ybh`XYgU]c"

@Yn1/2g1/2'a Y[]ga ÅH`j YZ`c[mia Ybbm]fY`gnYfYbÅ`Uj 1/2U`UtbU_`Xc`[cnb]

J BX'bc]`Y'gU]V]b]#UWghdcghW'dY`c`dfcj cWfY`dY`WfY`c
Ubh]V]dYnW`d`BWFY"

9i `[cgU]U`XY`h'f`U'cdcfh b]XUXY`XY`X]gW]h'f`a U]g
XYHU`Yg]gcVfY`Uj U[U'dYggcU`a Ybh`"

@Yn1/2g1/2ZY`j]`U`bh]Y[m`Y`YngÅ`Yg]bhYf`Öh

5 `Bh`a d]bU`W`Vi Wf]Y'dcgV]`]HU`U`XY`U`X]gW]HU`W
8j g`dYf`gcbU`XYHU`]`Y`Y[UH`XY'dcgH'

A Yi `WffEW`c`YbV`b]fU`gY`UbYi c`dUfU`g U
UdfW]U]c"

GHubXUFX`Zcfa i `U`UbbU_`Y`f`g]U]Z`c[m]U`7J `U`V]Urc`a `b`m`U`b`j`U`b

5HU`UhgW]gcf]]`di`HY`]`fY[Bg]`7J`!i``a`Yi`"

9i `dcggc`Zc`fb`Y`Wf`fY`Zf`bV]Ug`gY`bY`W`gg]U]c"

GHubXUFX`Zcfa i `U`UffU]Z`c[m]b]r]c]h]j U[m]fY`ZfY`bV]1/2`UX1/2]U

J B'dchZ`fb]nU`fY`Zf]`Y`XY`U`""XUM]g`bh]bY`W]gU]fY"

F YZf`bV]Ug]dcXYa `gYf`gc`]V]U]XU]g]1/4#Uc`""

5 bbU_`Y`f`g]U]Z`c[m]h`Xgn`c]nb]`fY`ZfY`bV]1/2`i`Åg]Z`c[m_]h_]YfYggY`bY_`ÅfY

F YZf]b`Y`Y`dchZ]`gc`]M]HU`Y`XY`U`""

9gci `X]g]cb]Y`dUfU`Y`b]fYj`]g]U`Ya`""

5 bbU_`U`h`Xca`1/2j``UX1/2]U]Z`c[m]gnU]UX`j`U[m]Y[m]bhYf`ÖfU

Gi`bhX]g]cb]V]`dY`b]f]i`i`b`]bhYf]j]i`dY`""

CvF][`UXc`dcf`gYi`h`Ya`dc`Y`V`bg]XYfU]c"5[i`UfXc`U`
cdcfh b]XUXY`XY`X]gW]h'f`dYggcU`a Ybh`Ug]fU]h`NYg
dY`Ug]ei`U]g]gc]`Udfcdf]UXc`dUfU`Yg]U'dcg]Ãc" Dcf
Zj`cf`Y`b]fY`Ya`V`b]h]c`V`ta`][c]j]U`""

5`dfY`Zf]1/2hY`Å`Y`h`gÅ[Y_`a`Y[UX1/2]1/2`Åg]U`Y`Y`bh_YnÅg`1/2b`Ån`Åg`Å`f]h]a`Y[_`Ögn`Öb`ÅgY`_cf`Ugnb]1/2U]hcg

J B'a`i`i`a`Yg]W]Y`b]f]i`h]a`di`U`W`f`XU]h`]`dY`b]f]i`V]h]fYU
Ud`]W]Y]`5`h]d]h]W`]bhYfYg]dcgV]`]HU`U`XY`U`j`B`Yi`di`bY
dYf`gcbU`a`chj`Y`Y`dY`b]f]i`WfY`V`bg]XYf`V]B`g`bh]dYf`gc]U`bU
dch]j`]h]B`dY`b]f]i`U`W`gh]dcg]H`J`B`f]c[`g]B`a`B`V`b]h]U]U`]
df]b`""

7cfX]U`a`Y`bhY`Z`

<]j`U]U`cg]Z`V]Å`nY]h]b]Y]`Y]ga`YfYhYb

7i`g]j]a`B]Z`

5hYb]V]cg]U`a`Y`bhY`Z`

<]j`U]U`cg]Z`gnÅ`Yg_]ÖfY`b`Ugnb]1/2h]Z`]ga`Yf]h]V]Å`nY]h

7i`g]j]bWf]HU]h]Z`

7ca`Y`Yj`UXU`Yg]h]a`U]Z`

<]j`U]U`cg]Z`bY`a`i`Ö`Y`hYf`Y`X]h]Z`]ga`Yf]h]V]Å`nY]h

7i`fYg]dY`M]Z`

@Ya`Vf]U]b]Å]U]g]Z`

B`Ya`_]j`U]U`cg]Z`Ön`Y]h]`dUf]h]b]YfY`_]`Ön`Ö]h]Z`U_]`hY[Yn`XbY_`

HcU]h]W]Y]Vi`bY]Z`