

⇒a a][fUh]cb
6Ub_



6Ub_!'; YbYfU

: fYbW

9ghW'ei Y'Y'dYi I 'fYh]fYf'XY''fUf[YbhYb'@LhmQgubg
dUhf'XY'Vta a]gg]cb'3

5g_]b['k \YhYf'fYfY'UFY'Vta a]gg]cb'ZYgk \Yb'mci 'k]h.XfUk 'a cbYm]b'U'WffU]b'Vti blfm

9gdYfUbhc

ä i 'a]'dcj UgfYh]f]'a cbc'b'Yb'OUbXcQgYb'dU[]'_ch]nc'b3

E i Y'g'gcbh'Yg'ZfU]g'g]'Y'fYh]fY'XY''fUf[Ybh'¼i b
X]g]f]Vi h'i f'U' hca U]hei Y'Yi h'fbY'¼'U'VUbei Y'3

5g_]b['\ck 'a i W' h.Y'ZYg'UFY'k \Yb'mci 'k]h.XfUk 'Uih.Y'5HA g'cZU'VUb_'X]ZYfYbh'h'Ub'mci fg

?]c'Yg]Ug'U'_ch]nc'^g]'a]i nUgY_g]YfUb'a cbU' hca U'hc'b3

6Ub_! 'C dYb]b['U'VUb_'U'Wti bh

: fYbW

>Y'j ci XfU]g'ci j f]f'i b'Vta d'Y'VUbW]fY"

GhU]b['nci f']bhYbh]cb'hc'cdYb'U'VUb_'U'Wti bh

9gdYfUbhc

A]' U'i ga U'Zf'a]'VUb_'Ub'_cb'hc'b"

>Y'j ci XfU]g'Wdh' fYf'a cb'Vta d'Y'VUbW]fY"

GhU]b['nci f']bhYbh]cb'hc'WcgY'mci f'VUb_'U'Wti bh

A]' U'i g'Zf'a]'VUb_'Ub'_cb'hc'b"

9ghW'ei Y'Y'dYi I 'ci j f]f'i b'Vta d'Y'VUbW]fY'Yb
'][bY'3

5g_]b[']Z'nci 'Vb'cdYb'U'VUb_'U'Wti bhj]U'Ub'cb']bY'dfcWXi fY

ä i 'a]'dcj Uga U'Zf'a]'VUb_'c'_cb'hc'b'fYhY'3

@U'WffY'VUbW]fY'Ygh'Y'Yi bY'WffY'XY'fYfU]h'ci 'i bY
WffY'XY'VAX]h'3

5g_]b['k \U'h_]bX'cZ'WffX'nci 'k]'' [Yhk]h'nci f'U'Wti bh

ä i 'a]'f]W] cg_'U'f'hc'b'XY'XW'f'c'U'_fYX]h_'U'f'hc'b3

9ghW'ei Y'Y'dYi I 'U] c]f'U'W]g'¼a Yg'Xcbb'ÅYg
VUbW]fYg'XYdi]ga cb'dcfU'Y'3

5g_]b[']Z'nci 'Vb'Wffm'ci h'VUb_]b['dfcWXi fYg'cb'mci f'd\cbY

ä i 'a]'dcj Ugi n]'VUb_]ga cb'g' f'a]U'h'YZ'cbc3

E i Y'g'hmdYg'XY'Vta d'Yg'VUbW]fYg'U] Yn!] ci g'3

5g_]b['k \U'hmdYg'cZ'VUb_'U'Wti b'rg'UFY'U] U]'U'Y

?]c'h]dc'^XY'VUb_'c'_cb'hc'^j]\U] U'g3

Vta d'Y'Vti fUbh

HmdY'cZ'VUb_'U'Wti bh

_i fUbhU'_cbhc

Vta d'Y'XfAdUf] bY

HmdY'cZ'VUb_'U'Wti bh

dUfUXc'^_cbhc

⇒a a][fU]cb
6Ub_



Vtā dH' dYfgcbbY HndY'cZVUb_ UWti bh	dYfgcU'_cbhc
Vtā dH' Vtā a i b HndY'cZVUb_ UWti bh	_i bU'_cbhc
`j fYh'Yi bY HndY'cZVUb_ UWti bh]bZUbU'_cbhc
Vtā dH' Yb'XYj]gY'ĀfU[ĀfY HndY'cZVUb_ UWti bh	ZFYa XUj Ui hc'_cbhc
Vtā dH' dfcZYgg]cbbY HndY'cZVUb_ UWti bh	UZfU'_cbhc
Vtā dH' dci f'YgĀh X]Ubrg HndY'cZVUb_ UWti bh	gi XYbU'_cbhc
MU h]`XYgZU]g'a Ybg Y'g'dci f'Y'Vtā dH' 3 5g_]b[]ZĤ.YfY'UFY'a cbĤ`mYI dYbgYg]hc'VY'dU]X'Zcf'Ĥ.Y'UWti bh	ä i YgU]g'a cbU'U'^_ch]nc^3
E i Y'g'gcbh`Yg'ZU]g'dci f'Yg'fUbgZYfng]bhYfbU]cbU I `3 5g_]b[`Uci hVtā a]gg]cbg'Zcf']bhYfbU]cbU 'fUbgZYfg	?]c'YgUg`U'_ca]g]cbc^dcf']bhYfbU]U'^fUbgdU] c^3
MU h]`i bY'Ugg] fUbW'Yb'WgXY'dYfY'ci `XY'j c`XY a U'WfY'3 5g_]b[]ZĤ.YfY']g]bg] fUbW']Znci f'WfX']g`cg]cf'g'c`Yb	ä i `Y_n]gUgU'bUb'UgY_i fcb'Yb'_Uhc'_Y'a]U'_Ufhc'YgUg dYfX]U'U `HY]U3
9ghW'ei Y'Y'fYĀc]gi b'WĀei]Yf'3 5g_]b[]Znci `fW]j Y'U'WY'W'Vcc_'k]Ĥ'nci f'UWti bh	ä i `a]f]W] UgäY_Ufcb3
E i Y'Ygh`Y'U I `Xf]bhĀfĀ3 5g_]b[`Zcf']bZcfa U]cb'Uci hĤ.Y'g]]b[g]bhYfYghfU'Y	?]c'YgUg`U]bhYfYnc'XY' dUfUXc^3
E i Y`Y'dfchW]cb'cZFYn! ci gVcbfY`U'ZFU XY VUbW]fY'3 5g_]b[`k \Uha YUg] fYg'Ĥ.Y'VUb_'ĤU_Yg]b'WgY'nci `UFY'U'j]W]a `cZU'ZFU X	9b'_]c^j c^c^j]dcj Ugdfch`_h]a]b'XY'ZFU Xc^3

⇒ a a] [f U h] c b 6 U b _

> f U j ' d Y f X i ' a U ' W f f Y ' V U b W U j f Y "

A] ' d Y f X] g a] U b _ f Y X] h _ U f h c b "

G h u j b [' h _ U h m e i ' ' c g h m e i f ' V f Y X] h W U F X

A U ' W f f Y ' V U b W U j f Y ' U ' A ' A ' j c ' A ' Y "

A] U _ f Y X] h _ U f h c ' Y g] g h Y] h U "

G h u j b [' h _ U h m e i f ' V f Y X] h W U F X ' k U g] g h c ' Y b

D c i j Y n l j c i g ' Z U j f Y ' c d d c g] h] c b ' g f ' a c b ' V e a d f Y ' 3

ä i j] ' d c j U g V c _] ' a] U b _ c b h c b 3

5 g _ b ['] Z h Y ' V U b _ ' W b ' V c W _ m e i f ' V U b _ ' U W e i b h

> f U j ' V Y g c] b ' X f i i b Y ' b c i j Y ' ' Y ' W f f Y ' V U b W U j f Y "

A] ' W Y n c b U g U b g h U U U b _ ' U f h c b "

G h u j b [' h _ U h m e i ' b Y Y X ' U ' f Y d ' U W a Y b h W U F X ' V W U i g Y ' m e i ' X c b f i i ' U j Y ' m e i f ' W U F X ' U b n a c f Y

6 U b _ ! :] b U b V] U ' \ Y d

: f Y b W

9 g d Y f U b h c

> Y ' j c i X f U j g U j c] f ' X Y g f Y b g Y] [b Y a Y b h g j g f ' ' Y g d f A e g

A] ' U h i g \ U j]] b Z c f a c ' b ' d f] ' d f i b h c ^ "

5 g _ b [' Z c f] b Z c f a U j c b ' U W c i h ' c U b g

E i Y g j g c b h ' Y g h U i | ' X f j b h A f A e i 3

?] c b j] ' d c j U g X] f] ' a] b ' d f] ' U] b h Y f Y n c 3

5 g _ b [' Z c f] b Z c f a U j c b ' U W c i h i h Y] b h Y f Y g h i f U Y

> Y ' j c i X f U j g X Y g f Y b g Y] [b Y a Y b h g j g f ' ' Y g d f A e g
\\ m d c h A W U j f Y g

A] ' U h i g \ U j]] b Z c f a c ' b ' d f] ' \] d c h Y _ c ^ "

5 g _ b [' Z c f] b Z c f a U j c b ' U W c i h a c f h] U] Y g

> Y ' j c i X f U j g a f Y b h Y h b] f U j Y W b ' V e b g Y] ' ' Y f
\\ m d c h A W U j f Y "

A] ' U h i g d U f c '] _ i b ' \] d c h Y _ c _ c b g] ' U b h c "

5 g _ b [' h c ' g d Y U _ k] h ' U ' a c f h] U] Y U X j] g c f

> f U W A h Y ' a U d f Y a] A f Y ' d f c d f] A h A "

A] ' U ä Y n c g a] U b i b i U b ' \ Y ' a c b "

G h u j b [' h _ U h m e i ' U f Y ' V i n j b [' n e i f ' Z] f g h ' \ c a Y

> U W A h Y ' i b Y ' g Y W e b X Y ' d f c d f] A h A "

A] ' U ä Y n c g a] U b X i U b ' d f c d f U c b "

G h u j b [' h _ U h m e i ' U f Y ' V i n j b [' U g Y W e b X ' d f c d Y f h m

> Y ' j c i X f U j g f Y b c i j Y Y f i b ' d f A e i \ m d c h A W U j f Y "

A] ' U h i g U b ü] ' U \] d c h Y _ c b "

G h u j b [' h _ U h m e i ' k c i ' X '] _ Y h c ' f Y a c f h] U] Y

⇒a a][fU]cb
6Ub_



>Y'j ci XfU]g'dUggYf'Yb'fYj i Y'a cb'dfA\m\ch\ÅW]fY"
GfU]b['h.Uhimei 'k ci 'X'']_Y'hc'fYj]Yk 'mei f'a cff] U[Y

A]' Uhi gfYY_nUa Yb]''U\]dchY_cb"

>fUW\ÄY'i bY'dfcd]f]Åh'¼a YHfY'Yb''cV]h]cb"
GfU]b['h.Uhimei 'UFY'Vi n]b['U'dfcdYf]mhc''Yh

A]'UÄY'rcg]bYa cj W'U cb'dcf''Ug]"

A Yg'fYj Ybi g'Ubbi Y'g'Vfi hg'g'Å'Äj Ybh'¼SSSSSSS"
GfU]b['\ck 'a i W'imei f' [fccg]Ubbi U']bW'a Y'jg

A]U'a U bYHU'UFU'YbgdYnc YgUg]SSSSSS"

6Ub_!'⇒bgj fUbW

: fYbW

9gdYfUbhc

>Y'j ci XfU]g'gci gW]fY'¼ai bY'Uggj fUbW"
GfU]b['h.Uhimei 'UFY']bhYfYgh'X']b']bgj fUbW

A]' Uhi gUÄY]U'UgY_i fcb"

Uggj fUbW'\UW]h]h]cb
Hm\Y'cZ]bgj fUbW

\Y'a U#Xca UbUfU'UgY_i fc

Uggj fUbW'j cntU]Y
Hm\Y'cZ]bgj fUbW

j c'UuU'UgY_i fc

Uggj fUbW'j]Y
Hm\Y'cZ]bgj fUbW

j]j U'UgY_i fc

Uggj fUbW'a UUX]Y
Hm\Y'cZ]bgj fUbW

gUbU'UgY_i fc

Uggj fUbW'U hc
Hm\Y'cZ]bgj fUbW

U hcUgY_i fc

Uggj fUbW'j ÅhÅf]bU]fY
Hm\Y'cZ]bgj fUbW

Xca WYg]hcUgY_i fc

Uggj fUbW'j c`
Hm\Y'cZ]bgj fUbW

h'U'UgY_i fc

dfchW]cb'\m\ch\ÅW]fY
Hm\Y'cZ]bgj fUbW

\]dchY_U'dfchY_hc

=a a][fUh]cb
6Ub_



Uggj fUbW`Åhi X]Ubh
HnrdY`cZ]bgj fUbW

ghi XYbhrdcgjXc^

Uggj fUbW`Vt`YVt]j Y
HnrdY`cZ]bgj fUbW

[fi dcUgY_i fc

Uggj fUbW`XYV]Ybg
HnrdY`cZ]bgj fUbW

dfcdf]YncUgY_i fc

Uggj fUbW`]bcbXU]cb
HnrdY`cZ]bgj fUbW

]bi bXcUgY_i fc

Uggj fUbW`]bWbX]Y
HnrdY`cZ]bgj fUbW

ZUfUgY_i fc

DYbXUbhVt`a V]Yb`XY`a c]ggyfU]! Y`Vt`i j YffYt`3
5g_]b[`ck `a Ubmia cbh`g`mci f`]bgj fUbW`Vt`j YfU[Y`UgY

Dcf`_]ca `XU`a cbUrc`^a]YgUg_cj fUu3

E i Y`Ygh`Y`Vt`xhXY`f]ggj fUbW`3
5g_]b[`ck `a i W`h`Y`]bgj fUbW`]g

?]c`YgUg`UdfYnc`dcf`U`UgY_i fc3