# JC>I:9 HI6I:H

### H: 8JG>I>: H 6C9 : M8 = 6C <: 8DBB>HH>DC

 $L \text{ OcXY}^{\text{Wd}} ^{9} = -0/4$ 

;DGB ,+(F

**\$BQb[ D^**U%

FJ6GI:GANG:EDGIEJGHJ6CIIDH:81>DC, DG,0\$T%D; I=: H:8JG>I>:H:M8=6C<: 68ID; ,4./;\_bdXUaeQbdUb\i`UbY\_TU^TUTBQbSX.,'-+--

h

IG6CH>I>DCG:EDGIEJGHJ6CIIDH:8I>DC,.DG,0%T%D;I=:H:8JG>I>:H:M8=6C<:68ID;,4./

# C: LH 8DGEDG6 I>DC

9U\0g0bU

\$HdQdU\_b\_dXUbZeb\cT\Sd\\_^\_\\\Y\\^\s\_b\bQd\\\_^\_b\_b\WQ^\\jQd\\\_^\\

,-,,  $6\,f\text{U}^{\text{}}\text{e}\text{U}_{\text{}}\text{V}\,\text{d}\text{X}\text{U}$  6 ] <code>UbYSQc'</code> <code>CUg</code> <code>N\_b['</code> <code>CUg</code> <code>N\_b['</code>

\$6TTbUcc\_V `bY^SY`Q\ UhUSedYfU \_VVYSUc\\

/1(-40+42+

 $\$  )G)H) : ] `\\_iUb >TU^d\\Y\SQd\\\_^ C\_)\%

,++.1

\$OY` 8\_TU%

**\$-,-**\% /,1(./++

\$GUWYcdbQ^dkc dU\U`X\_^U ^e ] RUb' Y^S\eTY^W QbUQ S\_TU%

HUSebYdYUc bUWYcdUbUT `ebceQ^d d\_ HUSdY\_^ ,-\$R%\_V dXU 6Sd5

I Yd\U V UOSX S\Occ

I bQTY^W <u>Hi ] R\_\\$c</u>% CQ ] U \_V UQSX UhSXQ^WU \_^ gXYSX bUWYcdUbUT C: LH 8DGEDG6 I>DC

;DGB ,+(F I67A: D; 8DCI:CIH

# >I:B,);>C6C8>6AHI6I:B:CIH

#### C: LH 8DGEDG6 I>DC

8DCHDA>961:9H161:B:CIHD; DE:G6I>DCH

C_dUc	;_b dXU dXbUU B QbS	]_^dXc U^TUT X.,' -+-,	;_b dXU ^Y^U ]_^dXc U^TUT B QbSX .,'

# C: LH 8DGEDG6 I>DC

# **8DCHDA>96I:9HI6I:B:CIHD;8DBEG:=:CH>K:>C8DB:**

;_b dXU dXbUU ]_^dXc U^TUT B QbSX . ,'		U^TUT ;_b dXU ^Y^U ]_^d B QbSX .,'	
-+	-+-,	-+	-+-,

CDI: -) G:K:CJ:H

		;_b dXU dXbUU	] _^dXc U^TUT I	3 QbSX .,' -+		
9 YWYdQ\ GUQ\ : cdQdU HUbfYSUc	HeRcSby`dy_^ KyTU_ HUbfySUc	9_g ?_^Uc	7[ EeR\\'cX\'^\\ \$\'^ ] \\\\'_^c\'	CUgc BUTYQ	DdXUb	I_dQ\ GUfU^eUc
			\$1 ] 1//1c.			
		;_b dXU dXbUU		3 QbSX .,' -+-,		
9 YWYdQ\ GUQ\ : cdQdU HUbfYSUc	HeRcSby`dy_^ KyTU_ HUbfySUc	9_g ?_^Uc	7 <u>     [                               </u>	CUge BUTYQ	<b>D</b> dXUb	I_dQ\ GUfU^eUc
			\$Y^ ] Y\\Y_^c%			
9 YWYdO\ GUO\	HeRcSby`dy ^		J_^dXc U^TUT	B QbSX .,'-+		
9 YWYdQ\ GUQ\ : cdQdU HUbfYSUc	HeRcSbY`dY_^ KYTU_ HUbfYSUc	9_g ?_^Uc	7 <u> </u>	CUgc BUTYQ	DdXUb	I_dQ\ GUfU^eUc
			\$Y^ ] Y\\Y_^c			
		=				

;\_b dXU ^Y^U ]\_^dXc U^TUT B QbSX .,' -+-,

 $9_g ?_{Uc} = 7_{EeR \ VCXY^W} = CUgc BUTYQ$ 

Q **D**dXUb

 $_{GUfU^{\wedge}eUc}^{I\_dQ\backslash}$ 

\$Y^ ] Y\\Y\_^c%

#### CDI: .) 68FJ>H>I>DCH

8U]LZ[VYcZ 1\ZPULZZ 3HPS`

ONYLLTLU[ [V HJX\PYL 1 HZL 2 OLTPJHSZ

> ?8B

CDI: /)>BE6>GB:CI 6C9 G:HIGJ8IJG>C< 8=6G<:H

	;_b dXU dXbUU ]_^dXc U^TUT B QbSX . ,'		;_b dXU ^Y^U ] _^dXc U^TUT B QbSX . ,'	
	-+	-+-,	-+	-+-,
	\$1^ 1	Y\\Y_^ <b>c</b> %	\$Y^ ] Y	\\Y_^c%
: aeYdi A_ccUc_V 6VVY\YQdUc		<del></del>		
ODI AVENCODI C. H				
CDI: 1) 7DGGDL>C <h< td=""><td></td><td></td><td></td><td></td></h<>				

\*( \*\* BLUPVY = V[LZ

CLYT; VHU O HUK AL]VS]PUN 2YLKP[5HJPSP[PLZ

;_b dXU ^Y^U B QbS	] _^dXc U^TUT XX . ,'
-+	-+-,
\$Y^ ] Y	\\Y_^ <b>c</b> %

2 HZO MSV^ KLYP]H[P]LZ

<QY^ \$\\_cc% bUS\_W^YjUT Y^
6SSe ] e\QdUT DdXUb
8\_ ] `bUXU^cYfU A\_cc V\_b dXU ^Y^U
] \_^dXc U^TUT B QbSX . ,'</pre>

>^S\_ ] U cdQdU ] U^d \\_SQdY\_^

-+-- -+-, -+-- -+-,

\$Y^ ] Y\\Y\_^c%

CDI: 4): $6GC>C $ADHH$ E: GH=6G:$	

=L^Z OTLYPJH <hyrl[pun< th=""><th></th><th></th></hyrl[pun<>		
8UZPNUPH B`Z[LTZ\\ 8UJ'		
EHSHZZPZ 2VTT\UPJH[PVUZ\\8UJ'		
Enshell 2 v 1 1 \ Ulship v OZ# 003		
7 HYWLY 2 VSSPUZ		
$D'$ : $' = L^ZWHWLY < H[[LYZ]]$		
<del>.</del>	$COL = L^Z V I I I I F V Y S K$	$COL B \setminus U$

CDI: ,-) H: < B: CI >C; DGB 6 I>DC

# $COL\ FHSS\ B[YLL[\ 9V\ YUHS$

1 HYYVUcZ

;_b dXU dXbUU B Qb	]_^dXc U^TUT SX .,'	;_b dXU ^Y^U B QbS	] _^dXc U^TUT X . ,'
-+	-+-,	-+	-+-,
	\$Y^ ] Y\	\Y_^c%	

	6 c _V B QbSX .,' -+	6c_V ?e^U .+' -+-,
	\$Y^ ]	Y\\Y_^c%
		_
		-
CDI: ,.) 699>I>DC6A;>C6C8>6A>C;DGB6I>DC		
	6 c _V B QbSX . ,' -+	6c_V ?e^U .+' -+-,
		Y\\Y_^c%
	6 c _V B QbSX . ,' -+	6c_V ?e^U .+' -+-,
		?e^U .+' -+-, \\\\\_^c\\

6c\_V BQbSX.,'-+-- ?e^U.+'-+-, \$Y^ ] Y\\Y\_^c%

#### >I:B-)B6C6<:B:CIkH9>H8JHH>DC6C96C6ANH>HD;;>C6C8>6A8DC9>I>DC6C9G:HJAIHD; DE:G6I>DCH

COPZ KVJ\TLUIN PUJS\KPUN [OL NVSSV^PUN KPZJ\ZZPVU HUK HUHS`ZPZN JVU[HPUZ Z[H[LTLU[Z [OH[ JVUZ[P]\[L a\NYY^HYK&SVVRPUN Z[H|LTLU|Zb ^P[OPU |OL TLHUPUN VN BLJ|PVU \*)4 VN |OL BLJ\YP[PLZ 4\_JOHUNL OJ| VN ).+, N HZ HTLUKLK #|OL a4\_JOHUNL OJ|b\\ HUK BLJ/PVU \*-O VN [OL BLJ\YP[PLZ OJ[ VN ) . ++N HZ HTLUKLK' OSS Z[H[LTLU[Z [OH[ HYL UV] Z[H]LTLU[Z VN OPZ[VYPJHS MHJ] HYL NVY^HYK& SVVRPUN Z[H[LTLU]Z' COL ^VYKZ aL\_WLJ[%b a^PSS%b aLZ[PTH[L%b aHU[PJPWH]L%b aWYLKPJ[%b a LLSPL]Lb HUK ZPTPSHY L\_WYLZZPVUZ HUK JHYPH/PVUZ JOLYLVM HYL PUJLUKLK IV PKLUJPM` MVY^HYK&SVVRPUN ZJHJLTLUJZ' COLZL ZJHJLTLUJZ HWWLHY PU H U\ T ILY VM WSHJLZ PU JOPZ KPZJ\ZZPVU HUK HUHS`ZPZ HUK PUJS\KL Z[H[LTLU[Z YLNHYKPUN [OL PU[LU]% ILSPLM VY J\YYLU[L WLJ[H[PVUZ VM [OL 2 VTWHU`M P[Z KPYLJ[VYZ [OL 2VTWHU`cZ Z[YH]LN` HUK Z[YH]LNPJ PUP[PH[P]LZ HUK [OL V\[JVTL V|| JVU]PUNLUJPLZ Z\JO HZ SP[PNH]PVU HUK PU]LZ[PNH]PVUZ' ALHKLYZ HYL JH\[PVULK [OH] HU` NVY^HYK&SVVRPUN Z[H]LTLU[Z HYL UV] N\HYHU[LLZ VN M\]\YL WLYNVYTHUJL HUK PU]VS]L YPZRZ HUK \UJLY[HPU[PLZ' < VYL PUNVYTH[PVU YLNHYKPUN [OLZL YPZRZ HUK \UJLY[HPU[PLZ HUK V[OLY PTWVY[HU[ MHJ[VYZ [OH] JV\\$K JH\ZL HJ]\H\$ YLZ\S|Z |V KPMMLY TH|LYPHSS` MYVT |OVZL PU |OL MVY^HYK&SVVRPUN Z|H|LTLU|Z PZ ZL| MVY|O\UKLY |OL OLHKPUN aAPZR 5HJ|VYZb PU ?HY| 8%  $8[LT]O'PU = L^2 2VYWVYH/PVUcZOUU \ ALWVY \ VU5VYT)(\&: MVY [OL MPZJHS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZJHS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY LUKLK 9 \ UL + (* *(*)* HZ MPSLK ^P[O [OL MPZ]HS`LHY + (* *(*)* HZ MPSL ^P[O [OL MPZ]HS`LHY + (* *(*)* HZ MPSL ^P[O [OL$  $BLJ \setminus YP$ [ $PLZ HUK 4\_JOHUNL 2VTTPZZPVU \# [OL aB42b VU O \setminus N \setminus Z] ) (N * (*) # [OL a*(*) 5VYT ) (&: b N HUK HZ TH` IL \WKH[LK PU [OPZ IN A STATE ] ) (N * (*) # [OL aB42b VU O \setminus N \setminus Z] ) (N * (*) # [OL a*(*) 5VYT ) (A * (*) * [OL aB42b VU O \setminus N \setminus Z] ) (N * (*) # [OL a*(*) 5VYT ) (A * (*) * [OL aB42b VU O \setminus N \setminus Z] ) (N * (*) # [OL a*(*) 5VYT ) (A * (*) * [OL aB42b VU O \setminus N \setminus Z] ) (N * (*) # [OL a*(*) 5VYT ) (A * (*) * [OL aB42b VU O \setminus N \setminus Z] ) (N * (*) * [OL a*(*) 5VYT ) (A * (*) 5VYT )$ HUK V[OLY Z\IZLX\LU[ @\HY[LYS` ALWVY[Z VU 5VYT ) (&@' COL 2VTWHU` KVLZ UV[ VYKPUHYPS` THRL WYV0LJ[PVUZ VN P[Z N\]\YL VWLYHIPUN YLZ\SIZ HUK\UKLY[HRLZ UV VISPNH|PVU #HUK L\_WYLZZS` KPZJSHPTZ HU` VISPNH|PVU\$ [V W\ ISPJS` \WKH|L VY YL]PZL HU` MVY^HYK&SVVRPUN Z[H|LTLU|Z% ^OL[OLY HZ H YLZ\S[ V% UL^ PU%VYTH|PVU% M\]\YL L]LU|Z VY V[OLY^PZL% L\_JLW[ HZ YLX\PYLK I` SH^'  $ALHKLYZZOV \backslash SK\ JHYLM \backslash SS ^YL\ JPL^ \ [OPZ\ KVJ \backslash TLU[\ HUK\ [OL\ V[OLY\ KVJ \backslash TLU]Z\ MPSLK\ I^ \ [OL\ 2\ VTWHU^ \ ^P[O\ [OL\ B42'\ COPZ\ ZLJ]PVU\ ZOV \backslash SK$  $LSZL \wedge OLYL \; OLYLPU \; HUK \; |OL \; H \setminus KP|LK \; JVUZVSPKH|LK \; MPUHUJPHS \; Z|H|LT \; LU|Z \; VM = L \wedge Z \; 2 \; VYWVYH|PVU \; HUK \; YLSH|LK \; UV|LZ \; ZL| \; MVY|O \; PU \; |OL \; *(*)$ 5VYT )(&:'

>CIGD9J8I>DC

DK:GK>:LD;I=:8DBE6CNkH7JH>C:HH:H

;_b dXU dXbUU ]_^dXc U^TUT B QbSX . ,'		;_b dXU ^\\\ ] _^dXc U^TUT B QI	
-+	-+-,	-+	-+-,

;_b dXU ^Y^U ]_^dXc U^TUT B QbSX .,'	-+	-+-,
;_b dXU ^\\^U ]_^dXc U^TUT B QbSX .,'	-+	-+-,
;_b dXU ^Y^U ]_^dXc U^TUT B QbSX .,'	- 1	
,_buav 1 0 1_ uac v 101 B Quoa .,	-+	-+-,



 $A40~6~VV \setminus W~1~VYYV \land PUNZ$ 

## >I:B.) FJ6CI>I6I>K: 6C9 FJ6A>I6I>K: 9>H8ADHJG:H67DJI B6G@:IG>H@

>I:B /) 8DCIGDAH 6C9 EGD8:9JG:H

**\$Q**\^ ^ 9\8<u>\$\\_:</u>&\bUU8\_^db\_\**b** Q^T Eb\_\$UT\BX\E `Ub\\_T

>I:B,)A:<6AEGD8::9>C<H

>I:B,6)G>H@;68IDGH

>I:B-) JCG: <>HI:G:9 H6A:HD; :FJ>INH:8JG>I>:H6C9 JH:D; EGD8::9H

## IQR\U\_V 8\_^dU^dc

>I : B 1) : M =>7>IH

OR		^d1	

H>< C6IJG: