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

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	D 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 . ,'
	-++-,	-++-,
	\$Y^] Y\\Y_^ c %	\$Y^] Y\\Y_^c%
:aeYdi A_ccUc_V 6VYY\YQdUc		
CDI: 1) 7DGGDL>C <h< th=""><th></th><th></th></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_^ c %

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' : $' = L^ZWHWLY < H[[LYZ]]$		
.	$COL = L^Z V I I I I F V Y S K$	$COL B \setminus U$

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'		U^	

H>< C6IJG: