! "#

7AQ<X:.B3673NA>8AV.79<B6E.8.RcN<79A>8AV.^3=<?<6A9EB673O.C79CP6BC.B937<.dBA7@W>A53. H99<X<:

kn #1% pn Štope 0 up p p |

6 ' !2.] [RN<

kup''l p# fexp# # mp |

/\$:8 * ')1 /2][RN<.<>FiRNV.<C6.†'^^

konqpópo¥p¤p##mrol1•pnOp¦pp) pt|

/- **1** 9 9 /2

3) # !.F.A A

-63F63.BcN3B86:.

) / !2.] [RN<.<9EFHGN<ŒV.<C6. ' a a^ H.6<=S A:

k

BAN4hAM.

f AKX.R9EFYB9<O.N<BB=<?@7<A6.3U.RUAS4A>8CXV.63.AB6E.3.7ANA.7.H99<X<V.7.g53.<>5A937V.7.g53.c8B<>8CV.7.g53.c3B9<>>8=37V.7.[R4>@K.^A>E.8.7.cNA43cNA4A9A>8A.7BA53.X3N3WA53.8.

`a}^

H.cN3.cNA43cNA4A9A>8A.dBA7@W>8K.H99<X.5373N86:

 $gB6AB673.bA937A = <.RB6N3A > 3.6 < = \lor.b63.3 > .7AN86.7.BRQAB6737 <> 8A.dBA7@W > A53.H99 < X <.8.7.\\ g53.A48 > B673 \lor.dBA7@W > 8K.H99 < X.B = <? < 9:$

																					•							2	9						>	>														
\$ 3	=	=	•	3)				=	*		3		•					2			;	}				*				•															
55			5 .	5 5	5	5 5	. 5	5	5 5	, ,	5	5 5	5 5	5 5		5 .	5 5	5	5 5	. 5	5	5 5	5	5 5	 5 5	5 5		5 5		5.	5 5	5	5 3	. 5	5	5 5	5	5 5	5	5 5	. 5	5	5 3	5 5	5	5 5	 5	5 5	 5	5 5
5 5 .	5 5 5	5	5	5 5	5	5 5	. 5	5	5 5		5	5 5	5 5	5 5	5	5 .	5 5	5	5 5	. 5	5	5 5	5	5 5	 5 5	5 5	. 5	5 5	. 5	5 .	5 5	5	5 3	. 5	5	5 5	5	5 5	5	5 5	. 5	5	5 3	5 5	5	5 3	 5	5 5	 5	5 5
55	5 5 5		5	5 5	5	5 5	. 5	5	5 5	•																																								
																					•				3	•)																			

&- .

73cN3B<X.><.B73K.N<?RO\\. 23T63OR.3>8.5373NCr\(\epsilon\).

4 :) # **8** !2.] [RN<.<>F i <X9EV.<C6.`-^ 2 3T63OR.N<?RO.c3>8O<A6V.b63.>A.O3 S A6.U@6E.6<=353V.b63.H99<X<.=63F63.B3?4<9V.¹<?RO. c3467ANS4<9.T63.4AKB678AO\\\.e4><S4@\\.cN3N3=.]O8N.AOR.8.U9<53B937A>8A.H99<X<^.cN3bA9. <C6:

$$k$$
, $1! p$, $1p p/ p$, $pus p/t$

; # * 4 ;) 4 !M.] [RN<.<>F i 8B<V.<C6.} a^ H.?<6AO.c393S89.B73K.U39EW3K.c<9Ah.><.cN<73A.RX3V.<.R=<?<6A9E>@K.c393S89.><.59<?M. [OM. D¾<6X.R9EF"<N8LV.'..‡..._..M. \<=8O.3UN<?3O.cN3N3=.]O8N.AOR.8.U9<53B937A>8A.H99<X<^.c3467AN489.B9RX.8.?NA>8A. dBA7@W>A53.H99<X

/ (8 &- . j RB98OV.}.._N \<=\$A.B33UQ<A6BCV.b63.ÔHU4R99<X.U8>. j <BÔR4V.4<.U 937<9168 CÀ 23Ah&OA99<X<=<?<9R**19**9* β Á

64`63.O3S9I6â ä cN3B86E:.

"X<N8V(Ö))Y.®R

 $36 > 3 \text{WA} > 88. \text{ [AUC. 8?. 8OA} > .8. < 6 \text{N8UR637} \text{M. e} \\ 6 \text{N8h} < > 8 \text{A.O3SA6.U} \\ @ 6 \text{E.c.} \\ 39 > @ \text{OV.} < .\text{O3SA6.U} \\ @ 6 \text{E.8.} \\ b < 868b > @ \text{ON.}$

 $2\,N87\,ANS\,A>h@.BR>>@.8.4S<O<G<.>A.36N8h<P6.>8.34>3.8?.8OA>.dBA7@W>A53.H99<X<.8.g53. <6N8UR637V.>A.367AN5<P6.8XV.<.>cN3687.c3467ANS4<P6.8X.c39>3B6EPM. dBA7@W>8K.H99<X.5373N86:.$

kV fep′n (#npj offp

k\$ kk phi op # lus log, lon /ppm Ščp'o lop il pv ik pop p # pn p (# ppp> # pol p po pv ipx psp p pi of z
p/ n pop p # lus | pp) on np /ppm gp en lul |

#8*

4

4 A!.] [RN<.<>F i <09EV.<C6.}"^

 $H.6 \le SA$:

k

\$ 1: 4)

YOAP6BC.7.784R.B937<.dBA7@W>A53.H99<X<.8.g53.c3B9<>>8=<.]O8N.AOR.8.U9<53B937A>8A. H99<X<^\|.e>8.>A.8?OA>CP6.636.BO@B9\\\.3.=363N3O.5373N86.3cNA4A9A>>3A.B9373\|.i<cN8OAN\\.dBA7@W>8K.H99<X.B=<?<9:.

kn ppo pa nÎop pa ok pp pa nyfop lul pho #pa |

\$ 6)

3 :4) # &8

<6N8UR637.U39EWAV.bAO.8OA>M.gB98.7.—3N<>A.8.BR>>A.5373N86BC.3.=<=3OF98U3.<6N8UR6A.
dBA7@W>A53.H99<X<V.T63.>A.?><b86V.b63.R. i A53.AB6E.8OCV.B3367A6B67RPQAA.T63OR.<6N8UR6RM
i 3.36.=<\$4353.8OA>8.dBA7@W>A53.H99<X<.3UC?<6A9E>3.cN38?73486BC.<6N8UR6M. i <cN8OANV.
R.dBA7@W>A53.H99<X<.AB6E.8OC.D[9@W<Q8KLM.Y?.T6353.8OA>8.O@.c3>8O<AOV.b63.R.H99<X<.AB6E.6<=3K.<6N8UR6V.=<=.[9RXM.</pre>

\3b>3.6<=\$\SA.3U9<\B6E.4AKB678K.W8NAV.bAO.3U9<\B6E.<6N8UR637\|\.i < cN8OAN\|\.7.-3N<>A.O3\$\SA6.\\B33UQ<6EBC.3.=<=3OF98U3.4AKB6788.dBA7@W>A53.H99<\X<\|\.>3.>A9E?C.B=<?<6E\|\.b63.T63.\\C79CA6BC.g53.<6N8UR63O.7.<\UB39P6>3O.BO@B9A\|\.

i < cN8OANV. dBA7@W>8K.H99<X.5373N86:

5 5 5 5 5 5 5 5 5 5 5 5 5 5

d.T63K.b<B68.=>858.WAKX.R9EFYB9CO.8U>.\AKO8C.]4<.BO89RA6BC.><4.>80.H99<X^.><b8><A6. cN873486E.43734@V.7.=363N@X.5373N86BC.3U.<6N8UR6<X.dBA7@W>A53.H99<X<\.; 6<.b<B6E. C79CA6BC.c34N3U>@O.N<?ICB>A>8AO.6353V.b63.U@93.B=<?<>3.N<>AA\|. [RN<.D<9EFYX9CBL.B34ANS 86.7.BAUA.R67ANS 4A>8A.<6N8UR637.dBA7@W>A53.H99<X<.8. 36N8h<>8A.36. i A53.>A43B6<6=37\|.\3b>3.6<=SA.8.<C6.<9EF—RNB8K.B34ANS 86.7.BAUA. R67ANS 4A>8A.8.36N8h<>8AV.=<=.3U.T63O.UR4A6.B=<?<>3.c3?SA\| d.T63K.BRNA.dBA7@W>8K.H99<X.5373N86:

k

) -# !2 ? 5

d.—3N<>A.AB6E.=3B7A>>3A.R=<?<>8A.><.63V.b63.?AOA9E.6<=SA.BAOEM.dBA7@W>8K.H99<X.5373N86:

k

H99<X<.b63F63.6C53686\|.--<=.O@.5373N898\|.7BC=3A.36N8h<>8A.7=9Pb<A6.7.BAUC.R67ANS4A>8A.

H99<X.7A?4AV.7@6A=<A6.O>353.7?43N>@X.B9A4B678KW.23.8X.B937<OV.dBA7@W>8K.H99<X.

' L

kn 1 fog p' stm náog p' st |

Y?.g53.OR4N3B68.AB6E.6<=<CV.3.=363N3K.O@.?><AOV.<.AB6E.6<=<CV.3.=363N3K.O@.>A.?><AOW. dBA7@W>8K.H99<X.B=<?<9:

k, lpp p t l el 0 ## ft lmm ##pm |

; < **8** !2.] [RN<.<9EFYBN<V.<C6F Õ.

=363N@K.AQA.>A.N3489BCLM.

d3FcAN7@XV.c39.NAUA>=<.O3S>3.3cNA4A9C6E.639E=3.c3B9A.3cNA4A9A>>353.BN3=<\!.H.73F763N@XV.N<?7A.?><\P6.9P3\`\angle a \text{ 9C\angle P35\!\ld .N34869B\!\ld .6.23.c\'\angle \angle \angle ?7.?><\P6>3\\angle 3B<\P35\!\ld .73F

]^ bdeghi cj ell me opqerbstuv

4 1 4 : !2.] [RN<*3*<N7 .<C6.`a•^ dBA7@W>8K.H99<X.6<=SA.5373N86:

ko pp, op pŠ'lim, plo pp (θ) mpo ple exp Ψ o''p o Ψ mpo plo po Ψ , pp) o popp) pã p (θ of θ p) ext po pi of θ exp Ψ o''p op pÝ θ p |

- ' ' '!2.] [RN<.<?F``<N8K<6 \forall .<C6. } a^

d.B9A4RPQAO.<C6AV.=363N@K.cN87Ê9.WAKX.R9EFYB9COV.5373N86BC: