





!

=64>","?-/ -@#",A0J!T+,+!C!LCGMON+++++++#####E#####

!

::

!

[U:3.IV:<00.Y./3.1!&^20?!<052327!#4?26!]:.32052!&6/Y?T\!,"?-N,S(-

L>2`6/<6a!CF!IHGMN+++++++#####DPFICG+++++++

#33:2!96:44:0F![]V!"!.332;2!@6.4211.6!,R233a02!.76:;/2b!"/6127!-/?!K0?:

#`.6?:.0!,?/720?1!\$<`3:0;!<?!,5R..3FN,S-TA7>-!A(&U<a!IJF!IHIDF!GcDC!#UN

!+++++++#####GM+++++++

962;!8/Q:<0.44F![>622!,Y225R!=.21!).?!&d/<3!]:.32052c!!@<6?!C!.4!#01X261!?!A<7!

#6;/Z20?1!#;<:01?!>622!,Y225R!46.Z!)<7:02!,?6.1120!<07!962;!8/Q:<0.44\F!

>./07<?:.0!4.6!(07:^/7/<3!';R?1!<07!&BY6211:.0!L,2Y?Z`26!CFHICN++H+++++++

R??Y1cee7:5?:.0<6a+4:073<X+5.Ze724:0?:.0e5.07/5?+R?Z3fcgc?2B?h5.07/5?ilH0F5

0<3ilHill8./:1:<0<ilH'2^:127ilH,?<?/?21illiW=+ !+++++++#####GC+++++++

R??Y1ceeR23Y+?X:??26+5.Ze206/3221e6/32!+++++++#####GJ+++++++

R??Y1cee1<42?a+?X:??5R+?^e1e<6?:532e".ZZ/0:?a9/:723:021j3<0;!<;2h20kT,fCC

%<?24/3".07/5?+++++++#####GM+++++++

R??Y1ceeXXX+Z206/3221e6/32!+++++++#####DH+++++++

R??Y1ceeXXX+Z206/3221e6/32!+++++++#####GC+++++++

R??Y1ceea<4+.6;e02X120?21K<0?K.K<0K5.0126^<?:12Y2<Q264?26

1/552114K?K<31K<4325?/6De+++++++#####DP+++++++

R??Y1ceea<4+.6;e02X1e/0k2644e3k324?:1?6a.k726<K3<04.6Z:5R<2K

Q0.X32K325?/627Z:0:1?6<?K20./052R:KY:0:.01K5.0?6<6a.K0:^261:?K

^<3/21e+++++#####IHM+++++

I2^:0!8:?Z<0K<^<66.F![\*:??;20!2:0!.0!\*R2?R26!,Y225R!:1!]:.3206DMH;-

1#\$"?L#;/1?!DHF!IHCMN+++++#####H+++++

8:1<!>237Z<0!A<662??F![\*R20!(1!,Y225R!]:.3206)FI,S-TA7>-M\$B,(m/3a!CJF!

IHCMN+++++#####DC+++++

):1<!=<0;F!["R25Q!V./6!@6:^:32;2!\*R20!,Y2<Q:0;!4!@6.?2MFI#"\$?-

5#"A7%\$#2`6/<6a!MF!IHGMN+++++#####CP+++++

'2/^20!>20?.0!<07!&Z:3a!"6<02F![,R233a02!.76:;/2bF!T0R:0;27!)V"! ".332;2!

@6.4211.6!\*R.!"6127!-/?!#07# .6?:.0!,?/720?1F!%.371!U<5R2?2!?!@.1?!

'2Y.6?26n1!)25QFI,S-TA7>-!A(&U<a!IJF!IHIDF!GcDP!#LUN+++++#####CM+++++

]<53<^!%<^2MFG,-!AS,7-A'-&G,-!AS,7",((-

R??Y1ceeX2`+<65R:^2+.6;eX2`eIHCIHCHMCJCODDeR??YceeXXX+^<53<^R<^23+

<01+YRYj5<?h53<0Qao^<3hMlk<Ek53<0Qa+R?Z3dPaYh+\$US+++++#####CO+++++

!

>2726<3!/32!.4!#YY233<?2!@6.527/62F!/32!IGL<NLUNL&N+++++#####DI+++++

>2726<3!/32!!.4!#YY233<?2!@6.527/62F!/32!IO+C+++++#####DI+++++

>2726<3!/32!!.4!"^:3!@6.527/62F!/32!IGL<NLIN+++++#####DI+++++

!

! :^

!

T+,+!".01?:?/?..0F!#Z207H(+++++#####U#####

!

^







! @/61/<0?!?!.!>2726<3!'/32!.4!":^:3! @6.527/62!IGL\*3\$4\$F<^2

!

D

! \$R2!:=:1?6:5?!"./6?!4.6!?R2!./?R260!:=:1?6:5?!.4!)2X!V.6Q!5.6625?3a!:11/27!<!

Y623:Z:0<6a!:0E/05?:.0!Y6.R:~:?:0;!R2!204.652Z20?!.4!)+V+!920+!A/1+!85X!\_DGJ

L[%<?24/3!"./07/5?!8<X\N!127!.0:?!1!4<5:<3!:0^<3:7:?a!/0726!?R2!>:61?!#Z207Z20?!

?.!R2!T +".01?:?/?:.0!,Y25:<3#YY207:B!?.!A6:24!.4!#???.602a!920!16+3!N!N?!

CG

! \*R:32!5.Z:0;!?.!R2!1<Z2!5.053/1:.0F!#Z:5:!~~6~~5R!?R2![%<?24/3!"./07/5?!

8<X\!46.Z!<!7:442620?!<0?B<0!?R2! ?6:5?!/6?+!>:61?Z:5:~!1R.X!R<?1<?/?2!

<0<3.;./1!?.!)2X!V.6Qn1!3<X!X./37!`2!<!5.ZY/31:.0!.4!1Y225R!2!20!E25?!

X262

!

V

92! <DWL5:?:0;R#62,7,7- /H"\$4,- A'- 1\$(4\$+"\$%#7?-5A6%(" - A'- O6+7,3,-5A67&- A'-  
HG\$AUJMC!T+,+!OIO!LOCPW!N0726!?R<?!46<Z2X.6QF!^:6?/<33a!2^26a!<RZ20?!  
#???.602a!92026Z3Q21!:0/YY.6?4!?R2![%<?24/3!".07/5?!\3<X!<YY3:21!E/1?!<1!X233!  
?.! ?R2! [A3<1YR2Z./1! ".07/5?! 34X)2?X.6Q1 <62! 0.?! 62d/:627! ?.! Y6.R:`:?!  
q`3<1YR2Z./1r! 5.07/5?F! 62Z.^2! 1/5R! 5.07/5?! 46.Z! ?R2:6! X2` 1:?21F! .6! .?R26X:12!  
<7.Y?! <!Y.3:5a!7:5?<?27!`a! ?R2!,?<?2+!(07227F! <!02?X.6Q!Z<a!R<^2! <!Y.3:5a! ?!  
0.?R:0;! <`./?! /126! 62Y.6?1! .4! q`3<1YR2Z./1r! 5.07/5?F! 1.! 3.0;! <1! ?R<?! Y.3:5a! :1!  
7:153.127! ?.! ?R2!X6Qn! /126192! <?! JQ,, -#" (A- <?! JJF! L!).6! :1! <!02?X.6Q!  
62d/:627! ?.! <7.Y?! .6! 2^20! 624262052! q".3/Z` :<n1r! 724:0?:.0! .4! q`3<1YR2Z./1r!  
5.07/5?:!0!:?1!Y.3:5a+!#!02?X.6Q!Z/1?!7:153.12! <!Y.3:5a! ?R<?!:053/721!XR2?R26!<  
R.X!?:!X:33!621Y.0762Y.6?1!.4!q`3<1YR2Z./1r!5.07/5?!<1!724:027!`a!q".3/Z` :<n1!

#7<Z1! 7242071! ?R2! 3<X! 623a:0;! .0! ?R2! 2B<5?! 1<Z2! <6;/Z20?1! 2Z?R2! `a  
#?? .602a! 9202673R2! 3<X! 1:ZY3a! 62d/:621! 1.5:<3! Z27:<! 02?X.6Q1! ?.! 7:153.12!  
[4<5?/<3!<07!/05.0?6.^261:<3!:04.6Z<?:.0!\<`./?![?1!.X0!Y.3:5a!\4.6!72<3:0;!X:?R!  
<0?K:.3.;a!5.07/5?c! [q\$R2!Z262!4<5?!?R<?!?R2!7:153.1/62!623<?21!:0!1.Z2!X<a!?!<0  
:11/2! .4! Y/ 3:5! 72`<?2! 7.21!0620726! :?! s5.0?6.^261:Y36?:5/3<63a! XR20! ?R2!  
7:153.1/62!:1!62;<67:0;! ?R2!02?X.6Q1n!.X0!Y925a3M+!

! A/?!`a!4.65:0;!1.5:<3!Z27:<!02?X.6Q17, #&!<07+6B"\$ (X.3:5:2!62;<67:0;!  
R.X! ?R2a! X:33! 72<3! X:?R! 62Y.6?3+14R2Z./15.07/5?!\<07!| <0?KX.K12B21  
5.07/5?F!\?R2! 1?<?2!:1!5.ZY233:0;! ?R212!02?X.6Q1! ?.! 1Y2<Q244251^23a!  
<7Z:??:0! ?R2!2B:1?2052R40;! ?R2a!Z<a!0.?!`23:2^2!2B!PR:0;1F!Z.62.^26R2!  
2B:1?2052!.6!02B:1?2052!.4! XR:5R!:1! <! RY23a?27!?.Yc5:^:02!`2:0;! <07!  
:ZZ/?<`32!`.:3.;:5<3!12B2!!+

! &^20! XR262! <! Z<07<?27! Y.3:5a! 7.21! 0.?! 5.05260! 62Y.6?:0;! <! ?R:67! Y<6?an  
1Y225RF! :?!5<0!1?:33! 2!<0!/05.01?://?:.0<3!5.ZY/31:.0!?.!1Y2<Q+!>.6!2B<ZY32F!1/Y  
?R2!1?<?2U47:1.0!\Y<1127!<![ "6a1?<31!%2<3!\3<X!Z<07<?:0;! ?R<?!<33!R2<3?R!5<  
Y6.^:7261!Y6.^:72!<!Z25R<0:1Z!4.6!62Y.6?:0;!R2<3:0;1!X:?R!56a1?<31!.4!Y<?:20?1!/0  
?R2:6!5<62F!<07F!4/6?R26F! ?R<?!?R2a!Y.1?!1.;01!<07!<!0.?:52!.0! ?R2:6!X2`1:??<  
?R2:6!Y<?:20?1!.4!R.X!?!62Y.6?!R2<3:0;!/1:0;!56a1?<31!<07! ?R2:6!Y.3:5:21!5.0526  
621Y.07:0;! ?.!1/5R!62Y.6?1+!\$R2!1?<?2!7242071! ?R2!32X62a!92026732!  
R262c! ?R<?!?R2!Y.3:5a!7:153.1/62!62d/:62Z20?1!1:ZY3a!Z<07<?21!7:153.1/62!.4!4<5

:04.6Z<?:.0!?!5.01/Z261!623<?:0;!?!?R2:6!126^:521F!:+2+F!?R2:6!Y.3:5:21!XR20!4  
X:?R!<!Y<?:20?!62Y.6?:0;!?!R<^2!`220!R23Y27!.6!R2<327!`a!56a1?<31+!\$R2!5.0?2  
?R2!Y.3:5:21!?R2Z123^21!<62!5.ZY32?23a!/Y!?!?R2!R2<3?R!5<62!Y6.^:7261+  
! #;<:0F!Z<07<?:0;!R<R2<3?R!5<62!Y6.^:7261!:04.6Z!?R2:6!Y<?:20?1!.4!R.X!?!  
Z<Q2!62Y.6?1!<`./?!56a1?<3!R2<3:0;1!4.6521!?R.12!Y6.^:7261!?!<YY2<6!?!<5Q0.X3  
?R2!2B:1?2052!.4!1.Z2?R:0;! ?R2a!Z<a!`23:2^!:1!20?:623a!4:5?:.0<3F!<07!<!R<6



.YY.1:?:.0!?.!X<6!`/?!/YR237!?R2!724207<0?5!:.0/0726!<!42726<3B4X<?:0;!  
?R?!XR205!Y225R<0750.01Y225R232Z20?1!<62!5.Z` :027! :0!?R2!1<Z2!5./612!.4!  
5.07/5?F!<!1/44:5:20?3a!:ZY.6?<0?!.^260Z20?<3!:0?2621?!:0!62;/3<?:0;!R2!0.01Y22  
232Z20?!5<0!E/1?:4a!:05:720?<3!3:Z:?<?:.01!.0!>:61?!#Z207Z20?!46\$87Z1+  
O&#&,(-./-HE=7\$,DGC!T+,+!BDMICCGOPR<?!.^260Z20?<3!:0?2621?!Z/1?!`2!  
[/0623<?27!?.!R2!1/YY6211:.0!.4!4622!2BY6211:.0!<07![0.!:62<?26!?R<0!:1!21120?:<  
?R2!4/6?R26<052!.4!?R<?:!092621!DMMQ#(-./CAG%(A!GC!T+,+!DGM!LCGPGN  
?R2!"/.6?!.^26?/6027!U6+!m.R01.0n1!5.0^:5?:.0!4.6!43<;!`/60:0;!`25</12!R:1!<5?:.01!  
X262!2BY6211:^2!5.075R<?!62d/:6271?!#Z207Z20?!156/?0aF!<07!\$2B<1!7:7!0.?!  
<1126?!<0!:0?2621?!/0623<?27!?.!R2!1/YY6211:.0!.4!\$BY6261!0#Z207Z20?!  
3:~26<33a!4.6` :71!?R2!<`6:7;Z20?!.03a!.4!s1Y225RFn!`/?!X2!R<^2!3.0;!625.:0:b27!?R  
:?1!Y6.?25?:.0!7.21!0.?!207!<?!R2!1Y.Q20!.6!X6:??20X<07HJ+





Y261.0<3!`2R<^:.6!21Y25:<33a!<1!`<127!.0!Z.6<3!Y6!5A%2048J266:<Z

\*2`1?26+5.Z+!!

!".ZZ.0!5.33.d/:<3:1Z1!1/5R!<1![=.!<1!(!1<aF!0.?!<1!(!7.\!.6![ @6<5?:52!XR<?!

a./!Y62<5R\!:33/1?6<?2!3R?26F!5.ZZ.03a!/0726!7:17:05?:.0!`2?X220!1Y225R!

<07!5.07/5?+!\$R2Y62Z2!"/.6?!R<1!02^26!:07:5<?27!R<?!?!X<1!2ZY3.a:0;!

<0a?R:0;!.?R26!R<05Z20!/07261?<07:0;!.4!R2!X.670!5<121!:0^3^0;!

1Y225R!Z:B27!X:3R!7/5?+)2273211!?!1<aF!R2!>:61?!#Z207Z20?!7.21!0.?!Y6.?25?!

46225.07/5?F\03a!4622![1Y225R!R:1!1:ZY32!7:1?:05?:.0!Z/1?!`2!R.0.627!<07F!

1.!4<6F!?!R<1!!226./6?H

! \$R23:05RY:0!.4!R2!)2X!V.6Q!3<X!1!?!724:0!%0?24/3!07/5?!XR:5R!

[Z2<01!R2!/12!.4!<1.5:<3!Z27:<!02?X.6Q!?!^:3:4aF!R/Z:3:<?2F!.6!:05:??!^:.3205

<;<:01?!<!;6./Y!.6!53<11!.4!Y261.01!.0!R2!`<1:1!.4!6<52F!5.3.6F!623;:.0F!2?R0:5:?

0<?:.0<3! .6;:0F! 7:1<`3:?aF! 12BF! 12B/<3! .6:20?<?:.0F! ;20726! :720?:?a! .6! ;207

2BY6211:10,5:<3!U 27:<) 2?X.6Q!%k?24/3!07/5?!@.R:?:2F)+V+!920+!A/1+!

8<X!\_IDG655LIHIDNSR:1!724:0?:.0!1:ZY3a!;0.621!R2!4<503?0245!07/5?!

72156:`27!<1![R<?24/3!D!4<5?!1Y225R?1!62<1.0:0;

(0!1:Z:3<6!4<1R:04.62! ?R:1!"/6??R2!#?? .602a!92026232ZY!?!<6;/2!  
?R<?!?R2!%<?24/3!".07/5?!8<X!62!5075?F!<07!0.?!1Y225RF! 2\$2R2Y.62  
Z25R<0:1Z!62d/:62Z20?!7.21!0.?!62d/:62!1Z273!02?X.6Q1!?.!1Y2<Q!<?!<33F!32?!  
<3.02! 1Y2<Q! <0a! Z211<;2! <'R? ?24/3! 5.07/5?#-A !<?! IG!\$R:1! 2BY3<0<?:.0!  
7:162;<6?R2!4<5?!?62d/:6:0;!1.5:<3!Z27:<!5.ZY<0:21!Y6.^:72!<!Z25R<0:1Z!  
?R<?! [Y26Z:?! 5.01/Z261! ?.! 62Y.6?! 5.07/5?! Z22?:0;! q?R2! ,?<?2n1r! 724:0?:.0  
[R<?24/3! 5.07/5?!\$2/ <?! IUMN! 5ZY23! 1.5:<3! Z27:<! 5.ZY<0:21! 2ZY3:5:?3a  
207.612! ?R2!:72<! ?R225RBY621127!.0!1.5:<3!Z27:<0! 2[R<?24/3!5.07/5?6!  
5.07/5?!<?!<\$R:1!;!<0!<1126?:.0! ?R<?!?R2!1.5:<3!Z27:<!5.ZY<0a!Z<a!.6!Z<a!0.?!  
2Z`6<52!<1! ?6/2+

\$R2!,?<?2!.4!)2X!V.6Q!ka!` 23:2^2?R<?R2!X.671![?R2!/12k4! .5:<3!Z27:<!  
02?X.6Q!0!:?!1!724:0?:.0!4![R<?24/3!5.07/5?4:5:20?3a! ?:0;/:1R5.07/5?46.Z!  
1Y225R!a!4.5/1:0;! .0! ?R2!<5?! .4!Y.1?:0;!<1!7:1?:05?!46.Z! ?R2!5.0?20?! .4! ?R2!Y.1?



U266:<Z`1?26!724:0?:.0!1?<?21!532-0730^3^2!1.Z2!?aY2!.4!<5F(0+7#<?!

CC!+!-02!Z:,R?!<1!X233!53<:Z!R<?!62;/3<?:.01!.0![?R2!/12!.4!^5<3!5.671\!.6![?R2!

/12!.4!Y201\?.!^:3:4a!.6!R/Z:3:<Y262!62;/3<?:.01!.4!5.07/5R!15.043<?:.0!4

1Y225R!:?R5.07/5?! 1:ZY3a!`25</12!:?!:1! ?6<01Z:??27! ?R6./;R! 1.5:<431Z27:<



720::6<?:.0F! R<6<11Z20?F! .6! ^.:32052! `<127! .0! ?R2! 4.33.X:0;! Y6.?25?27  
5R<6<5?26:1!7#4,0- ,&G%\$4\$&?0- 4A"A70- 4#(&,0- %#&\$A%#" - A7\$I\$%0- \$33\$I7#&\$A  
7,"\$I\$A%0- (,Q0-I,%2,70-I,%2,7-\$2,%&\$&?0- (,Q6#" - A7\$,,%&#&\$A%0- 2\$(#B\$" \$&?0- (,7\$  
4A%2\$&\$A%0&,7#%-(#&#&0%<?24/3!" .07/5?FMS\$&401!?!?!:1!:ZY.11:`32! ?R2!  
^26a! 0<?/62! .4! ?R2! 126^520;<;2! :0! 5.07/5?! .6! `2R<^:.6! :0! ?R2! 5.ZZ.0!  
/07261?<07:0;! .4! ?R.12!X.671!XR:32!.0!?R212!1.5:<3!Z27:<!1:?21F!?R212!Y.3:5:21!532  
<62624266:0;!!1.Y225R 0.?!5.07/5?PR<?! ?R2! 1:?21!X:7R?25?!<07<7:5<?#1!  
Y6:^<?23x027! 5.ZY<0:21F! ?R2a! <62! 1/ E25?! ?.! ?R2! 1<Z2! >:61?! #Z207Z20?!  
1?6:5?/601,&5GA\$4,0-LL5-/-\*&&E?-K,%/0!D#J?R!CCGOF!CICH!LCC?R!"46+!IHIIN  
\$R2a!Z<aF!3:Q2!<53%<^23n1!4<Z./1!;6220;6.526F!^3/0?<6:3a!Y.1?!<!1:;0!5.0?<:0:0;!  
.02!Z211<;2F0?207:0;!?.!1:;0

?R2a!4223!?R2!0227!?.!2ZY3.a!?R2!?26Z![5.07/5?!\!?.`4/15<?2!?R2!4<5?!?R<?!?R2a!  
4<5?!621?6:5?:0;!1Y@25R!Y1!?R2a!4223!?R2!0227!?.!`4/15<?2!`25</12!?R2a!:0?260<  
<5Q0.X327;2!?R<?!62;/3<?!.0!.4!1Y225R!:!4.62::0!?.!#Z26:5<0!:72<31F!2^20!XR262!0  
1?6:5?3a! :332;4!2^20! ;62<?26! 5.05260! :! ?R2! 7:44:5/3?a! :0! 204.65:0;! ?R2!12! Y.3:5:21  
. `E25?:^23a+!%.X!7.21!.02!725:72!XR20!<!1:ZY32!1?<?2Z20?!`25.Z21!<0![<??<5Qj\!%.X!  
7.21!.02!72?26Z:02!?R2!Z.?:^<?!.0!.4!<!1Y2<Q26j!\*R20!7.21!Z262!1Y225R!00!11!?R2!3:  
<07!Y6.Z.?2!.6!205./6<;2!?R2!1?<?27!R<6Z16!7.21!.02!4:07!<!?6/3a!/0`:<127!  
<7E/7:5<?.6!4.6!XR2?R26!1.Z2?R:0;!:1![R<\$R4/B!Y.3:5:21!<62!46</;R?!?R2R!  
7<0;26!.4!5201.6:0;!526?7:04<^627Y:0:.01!/0726!?R2!;/:12!.4!Y6.?25?:0;!?R2!.0  
3:02!5.ZZ/0:?a+!  
@/1R:0?R:1!?6207!2^20!4/6<6226R.12!XR.!2d/4!Y225R!0.?!E/1?!X:?R!B?2  
5.07/5?F!/?!X:?R!^..32052F!2^20!?.!R2!Y.:0?!.4!E/1?:4a:0;!^..320?!62<5?:.01!46.Z!?R.1  
XR.!7:1<;62X:?R!?R2!1Y225R

(0!<!53<11:5!5<12!.4! ?R2!Y.?!5<33:0;! ?R2!Q2??32!`3<5QF! ?R2!1<Z2!Y6.4211.6!X  
1R.X0!:0!<!^:72.!R.37:0;!<!Z<5R2?2!.6!Q: ?5R20!Q0:42!?.! ?R2!025Q!.4!<!62Y.6?26!X  
Q0.5Q27!.0!R26!<Y<6?Z20?!7..6!?!<1Q!R26R2!:05:720?+'2/^20!>20?.0!<07!  
&Z:3a!"6<02F![,R233a02!.76:;/2bF!T0R:0;27!)V"! ".332;2!@6.4211.6!\*R.!" /6127!  
-/?!#0?:#` .6?:.0! ,/?720?1F!%.371!U<5R2?2!?! @.1?!'2Y.6?26n1N,5QAV>-  
!A(&!U<a!IJF!IHIDF!GcDEN<sup>11</sup>+

(0!U<65R!.4!IHIDF!V./0;#Z26:5<01!4.6!>6227.Z!<?!?R2!T0:^261:?a!<?!A/44<3.!  
LTAV#>N!<00./0527!?R2:6!:0?20?!?!`5:Z20?<?.6!U:5R<23!I0.X321!?!1Y2<Q!  
.0!?R2!?.Y:5!z%.X!'<7:5<3!>2Z:0:1Z!=21?6.a1!\*Z20!L#07!&^26a?R:0;!&312N+z!#!  
;6./Y!.4!Y6.4211.61!53<:Z27!?R<?!I0.X321n!1Y225R!X./37![24425?:^23a!q`2r!<!5<33!4  
;20.5:7<3!^:.32052!<;<:01?!Z2Z`261!.4!?R2!?6<01;2072605?Z!  
m/1?! 3<1?! Z.0?RF! <4?26! </?R.6! U<??! \*<31R! 1Y.Q2! <?! )2X! U2B:5.! ,?<?  
T0:^261:?a?!?R2!:0^:?<?:.0!.4!V./0;#Z26:5<01!4.6!>6227.ZF!<!1?<?2!120<?.6F!E.:027!  
`a! .?R26! Y/ 3:5! .44:5:<31F! X6.?2! ?.! ?R2! /0:^261:?aF! d/21?:.0:0;! [?R2! 6<?:.0<32! 4  
<33.X:0;! ?R:1! ?aY2! .4! 2^20?! ?R<?! X./37! Q0.X:0;3a! 46:;R?20! <07! R<6Z! Y<6?! .4! ?

<sup>11</sup>!R??Y1cee0aY.1?+5.ZeIHIDeHWaB20B5.42116R233a6276:;/2bR.37K  
Z<5R2?2.KY.1?62Y.6?2625Qb  
<sup>12</sup>!R??Y1ceea<4+.6;e02X1e/0K2644Pa3K24?:1?6a.K726<K3<04.6Z:5R<23  
Q0.X321325?/627Z:0:1?6<?K20./052R:KY:0:.01K5.0?6<6a.K0:^261:?K  
^<3/2!e3<1?!^:1?27!,2Y?2Z`26!IHFIHIDN

1?/720?!Y.Y/3<?:.0!+!+!+\!\$R2!X6:?261!53<:Z27!?R<?!1?/720?1!<31.!R<?2BY621127

`25</12!.4!?R2!\*<31R!2^20?!\

(0!IHCMF!6::R?!X:0;!5.ZZ20?<?.6!U:3.!V:<00.Y./3.1!X<1!:0^:?27!?.!1Y2<Q!.0!  
5<ZY/1!`a!?R2!A26Q232a!" .332;2!'2Y/^ 3:5<01+!%:1!1Y225R!X<1!5<052327F!<07!R2!X  
2^<5/<?27!`a! ?R2! T"! @ .3:52! =2Y<6?Z20?! 7/2! ?.! <0! [.6;<0:b27! ^:.320?! <??<5Q! <07  
721?6/5?:.0! .4! Y6.Y26?!\! A26Q232an! U<6?:0! 8/?R26! !:0;! m6+! ,?/720?! T0:.0+!\  
[U:3.! V:<00.Y./3.1! &^20?! "<052327! #4?26! ]:.32052! &6/Y?4,F\," ,?- N,S(-  
L>2`6/<6a! CF! IHCM(0! <0! 2BY3276?2720! .Y:0:.0! Y:252F! .02! 1?/720?:4:27! ?R2!  
^:.32052!`a!2d/<?:0;! ?R2!Y627:5?27!5.0?20?1!.4!R:1!1Y225R!X:?R\$R-23265226!  
1?<?27F![



:0?20?!.0!^:.32052!1:ZY3a!`25</12!R2!R<7!.Y:0:.01!7:4426:0;!46.Z!R,062X0!+!  
R26!Z:07!R:1!1Y225R#(!^:.32052F!/?20?1!X2621?4:20!621.6?:0;!Y6!ZY?^2  
^:.32052!&^20!?R2!2B265:12!.4!>:61?!#Z207Z20?!6:;R?1!`a!20;<;:0;!X:?R!<!Y261.0!  
R<^:0;! <! 7:442620?! .Y:0:.0! X<1! ^:.32052F! :0! R26! 21?R<320!R2! 5<ZY/1!  
<7Z:0:1?6<?!.0! 62;62??27! ?R2! 3.11! .4! ?R2! 2B265:12! .4! >:61?! #Z207Z20?! 6:;R?1  
5<ZY/1!7/2!?!?R2!5<0523:0;!4!?R2!1Y2<Q26!L-N,S(0-(6+7U!0!?R20!?R2  
^:.320?!Y6.?21?261!R<7!?R!607!R2!>:61?!#Z207Z20?!R2!1?/720?! .7a!X262  
?R2!3.126  
\$R2!?62<?Z20?D0.Y./3.1!6252:^27!X<431E/1?4:27!0.0K!/?20X6:?261  
:0!Y6.Z:020?!02X1Y<Y26:532!02!1?<?27!?R words can have aY.X264/3!24425?!  
.0!a./6!026^/1!1a1?2Z!"26?<:0!?aY21!.4!<7^261:?aF!2^20!?R.12!:0^3^:0;!0.!YRa1:5<3!  
5.0?<5?F!5Z0Q! a./! 1:5Q<3?26! a./!`6!0!2^20Q:33! 02/6.01 !<07!R.6?20!  
a./6!3:4! !8:1<!>237Z<0!A<662??F![\*R20!(1!,Y225R!]:.32052)FN,S-TA7>-M\$B,(  
Lm/3a!CJF!IHGM\$R2!</?R.6F!<!Y1a5R.3.;a!Y6.4211.6F!62<1.027!?R<?F!1:052!1Y225  
5<0!5</12! 1?6211F!?!5<0!`2!<!4.6Z! .4!^:.32052!:4!?!:1! [<07!02FZ2623a!  
[.44201:^2+\\,R2!5.053/727!`a!725:7:0;![A?!X2!Z/1?!<31.!R<3?!1Y225R!?R<?!`/33:21!  
<07!?.6Z20?1+!>6.Z!?R2!Y261Y25?:^2!.4!./6!`6<:0!52331F!?R2!3<??26!:1!3:?26<33a!  
^:.32052+92



?R2!E/7:5:<3!1a1?2ZF!R2!7.21!0.?!5.01:726!R.X!?.!?!6<013<?2!R:1!5.053/1:.0!:0?!.!<!  
!4!3<X!#R<?2^26!R2!Z26:?!1!.4!R:1!Y.!!YR:0.1.YR:5<33aF!<!6/32!.4!3<X!`<127!.0!  
?R2!1/^E25?:^2!62<5?:.01!.4!:00/Z26<`32!:07:^:7/<31!?.!^<6:./!Q:071!.4!1Y225R!X./37!  
`2!:05.R2620407/05.01?:?/??.03a!^<./2+!

962;!8/Q:<0.44F![>622!,Y225R!=.21!).?!&d/<3!]:.32052c!! @<6?!C!.4!#01X261!?!A<7!  
#6;/Z20?1! #;<:01?! >622! ,Y225R! 46.Z! )<7:02! ,?6.1120! <07! 962;! 8/Q: F0.44  
>./07<?:.0! 4.6! (07:^:7/<3! ':;R?1! <07! &BY621!1L2Y?2Z`26! CF! IHNDL2ZYR<1:1!  
<7727NWA/?!2^20!?R62<?1!.6!1Y225R!?R<?!Y.121!<!7<0;26!.4!:ZZ:020?!R<6Z!:1!1?:33!1Y  
KK3`2:?!/0Y6.?25?2707!0.?!5.07/5?+!  
\$R2!3<X!5<00.?!Y.11:`3a!`<12!46227.Z!.4!1Y225R!.0!?R2!1Y25/3<?:^2!Y.11:`32  
62<5?:.01!.4!:07:^:7/<31+!,/5R!<!6/32!X./37!`2!:05.R262005<07!?:/?:.0<3!<1!?:!  
X./37!2ZY.X26!?R2!R25Q326n1M273\$%\$,"A-./-5G\$4#DAM!T+,+!CF!J!LOGJGN

\*R:32!:07:^:7/<3!k07Y6:^<?23a!.X027!5.ZY<0:21!

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'21Y25?4/33a!1/ Z:??27F

e15#&G,7\$%,-D/-OGA7&

"#\$%&'()&!\*+!,%-\$ !

!!!!5A6%("'-A'-;,4A72-

,%&(8#!#+!9'&&)! !

8:42!82;<3!=242012!>./07<?:!0!

@-!A.B!C D C D!

-E<:F!"#GDH I K C D C D!

LMHMN!~~OP~~PH!

[Q1R.6?S3374+.6;](#)

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"/0123!4 6\*3\$4\$-567\$#,

8:42!82;<3!=242012!>./07<?:.0!<07!V./0;!#Z26:5<01!4.6!>6227.Z

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,2Y?2Z`26!!OF!!H!!D

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(!526?:4a!R<?!R:1!`6:24!5.ZY3:21!X:R!3RZ!aZ?<?:.0!.4!8.5<3

/32!IG+CL5NF!R2!aY24<52!62d/:62Z20?1!.4!>2726<3!/32!.4!#YY233<?2!@6.527/62

DIL<NLWNL#NF!<0aYR2a32!62d/:62Z20?1!.4!>2726<3!/32!.4!#YY233<?2

@6.527/62!DIL<NLON+!\$R:1!`6:24!X<1!Y62Y<627!/1:0;!<!Y6.Y.6?!.0<33a!1Y<527

?aY24<52!L\$:Z21!)2X!'.Z<0F!CJ!Y.:0?N+!&B53/1.^2!.4!?R2!Y.6?:.01!2B!2ZY?27!'a

>2726<3!/32!.4!#YY233<?2!@6.527/62!DIL4NF!R:1!`6:24!X<1!Y62Y<627!/1:0;!<!Y6.Y.6?!.0<33a!1Y<527

526?:4:5<?2!X<1!Y62Y<627!:0!623:<052!.06?R2!X/65?:.0!.4!?R2!X.67

Y6.5211:0;!1a1?2Z!LU:56.1.4?!\*67C6!/127!?.!Y62Y<62!?R:1!`6:24+

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! ! ! ! ! ! ! ! e1&?R26:02!\*+R.6?!!

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