

Муниципальное общеобразовательное учреждение

школа


предметов № 36»

УТВЕРЖДАЮ

Директор

МОУ «Средняя школа № 36»

 Т.Л. Горбатова

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Протокол от «27» августа 2024 г. «28» августа 2024 г.
№ 1

РАБОЧАЯ ПРОГРАММА
учебного предмета «Физическая ку

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

!. /0.1221 3/ 4565789:/; :<=>?<.8 @1 <./A@8 /9@/A@/0/ /BC80/ /B.16/A1@5D 9/9?1A=8@1 @1 /9@/A8 ?8B/A1@5; :.86<=>?1?12 /9A/8@5D /9@/A@/; /B.16/A1?8=>@/; 3./0.122E /9@/A@/0/ /BC80/ /B.16/A1@5D FG"\$ " " "H 1 ?1:I8 @1 /9@/A8 J1.1?:8.59?5:5 3=1@5.<82EJ .86<=>?1?/A K<J/A@/L @.1A9?A8@/0/ .16A5?5DH A/935?1@5D 5 9/M51=561M55 /B<71NC5J9DH 3.8K9?1A=8@0/; A 48K8.1=>@/; 3./0.1228 A/935?1@5D0

!. /0.1221 3/ 4565789:/; :<=>?<.8 K=D PQR :=199/A /BC8/B.16/A1?8=>@EJ /.01@561M5; 3.8K9?1A=D8? 9/B/; 28?/K5789:5 /4/.2=8@<<N :/@: .8?561M5N ?.8B/A1@5; FG"\$ " " " 5 .19:EA18? 5J .81=561M5N 78.86 :/@: .8?@/8 3.8K28?@/8 9/K8. I1@580

!.5 9/6K1@55 3./0.122E <75?EA1=59> 3/?8B@/9?5 9/A.828@/0/ ./995;9:/0/ /BC89?A1 A 4565789:5 :.83:/2 5 K8893/9/B@/2 3/K.19?1NC82 3/:/=8@55H 93/9/B@/2 1?:5A@/ A:=N71?>9D A .16@/B.16@E8 4/.2E 6K/./A/0/ /B.161 I56@5H <28NC82 593/=>6/A1?> M8@/9?5 4565789:/; :<=>?<.E K=D 912//3.8K8=8@5DH 912/.16A5?5D 5 912/1?:<1=561M550 S 3./0.1228 @1T=5 9A/5 /?.1I8@5D /BU8?:5A@/ 9=/I5AT589D .81=55 9/A.828@/0/ 9/M5/:<=>?<./0/ .16A5?5D ./995;9:/0/ /BC89?A1H <9=/A5D K8D?8=>@/9?5 /B.16/A1?8=>@EJ /.01@561M5;H A/6./9T58 ?.8B/A1@5D ./K5?8=8;H <75?8=8; 5 28?/K59?/A : 9/A8.T8@9?A/A1@5N 9/K8. I1@5D T:/=>@/0/ /B.16/A1@5DH A@8K.8@5N @/AEJ 28?/K5: 5 ?8J@/=/05; A <78B@/LA/935?1?8=>@E; 3./M8990

S 9A/8; 9/M51=>@/LM8@/9?@/; /.58@?1M55 3./0.1221 3/ 4565789:/; :<=>?<.8 9/J.1@D8? 59?/.5789:5 9=/I5AT889D 3.8K@16@178@58 <78B@/0/ 3.8K28?1 A :1789?A8 9.8K9?A1 3/K0/?/A:5 /B<71NC5J9D : 3.8K9?/DC8; I56@8K8D?8=>@/9?5H <:.83=8@5D 5J 6K/./A>DH 3/AET8@5D 4<@:M5/@1=>@EJ 5 1K13?5A@EJ A/62/I@/9?8; 959?82 /.01@5621H .16A5?5D I56@8@/ A1I@EJ 4565789:5J :1789?A0 !./0.1221 /B893875A18? 3.8829?A8@/9?> 9 .1B/78; 3./0.122/; @171=>@/0/ /BC80/ 5 9.8K@80/ /BC80/ /B.16/A1@5DH 3.8K<921?.5A18? A/62/I@/9?> 1?:5A@/; 3/K0/?/A:5 /B<71NC5J9D : AE3/=8@5N @/.21?5A/A V!.865K8@?9:5J 9/9?D61@5;W 5 VS98./995;9:/0/ 456:<=>?<./L93/.?5A@/0/ :/23=8:91 G' "W0

"BC8; M8=>N T:/=>@/0/ /B.16/A1@5D 3/ 4565789:/; :<=>?<.8 DA=D8?9D 4/.25./A1@58 .16@/9?/./@8 4565789:5 .16A5?/; =57@/9?5H 93/9/B@/; 1?:5A@/ 593/=>6/A1?> M8@/9?5 4565789:/; :<=>?<.E K=D <:.83=8@5D 5 K=5?8=>@/0/ 9/J.1@8@5D 9/B9?A8@/0/ 6K/./A>DH /3?52561M55 ?.<K/A/; K8D?8=>@/9?5 5 /.01@561M55 1?:5A@/0/ /?KEJ10 S 3./0.1228 K=D PQR :=199/A K1@1D M8=> :/@: .8?565.<8?9D 5 9AD6EA18?9D 9 4/.25./A1@582 <9?/;75AEJ 2/?5A/A 5 3/?8B@/9?8; /B<71NC5J9D A B8.8I@/2 /?@/T8@55 : 9A/82< 6K/./A>NH M8=/9?@/2 .16A5?55 4565789:5JH 395J5789:5J 5 @.1A9?A8@/EJ :1789?AH ?A/.789:/2 593/=>6/A1@55 M8@/9?8; 4565789:/; :<=>?<.E A /.01@561M55 6K/./A/0/ /B.161 I56@5H .80<=D.@EJ 61@D?5DJ KA501?8=>@/; K8D?8=>@/9?>N 5 93/./?/20

X16A5A1NC1D @13.1A=8@/9?> 3./0.122E /3.8K8=D8?9D A8:?. /2 .16A5?5D 4565789:5J :1789?A 5 4<@:M5/@1=>@EJ A/62/I@/9?8; /.01@5621 61@521NC5J9DH DA=DNC5J9D /9@/A/; <:.83=8@5D 5J 6K/./A>DH 3/AET8@5D @1KYI@/9?5 5 1?:5A@/9?5 1K13?5A@EJ 3./M899/A0 \$<C89?A8@/E2 K/9?5 I8@582 K1@0/; /.58@?1M55 DA=D8?9D 3.5/B.8?8@58 /B<71NC5259D 6@1@5; 5 <28@5; A /.01@561M55 912/9?/D?8=>@EJ 4/.2 61@D?5; /6K/./A5?8=>@/;H 93/.?5A@/; 5 3.5:=1K@/L/.58@?5./A1@0/; 4565789:/; :<=>?<./;H A/62/I@/9?>N 3/6@1@5D 9A/5J 4565789:5J 93/9/B@/9?8; 5 5J M8=8@13.1A=8@/0/ .16A5?5D0

S/935?EA1NC88 6@178@58 3./0.122E 61:=N718?9D A 9/K8;9?A55 1?:5A@/; 9/M51=561M55 /B<71NC5J9D @1 /9@/A8 /92E9=8@5D 5 3/@521@5D ./=5 5 6@178@5D 25./A/0/ 5 ./995;9:/0/ /=5235;9:/0/ KA5 I8@5DH 3.5/BC8@5D : 5J :<=>?<.@E2 M8@/9?D2H 59?/.55 5 9/A.828@/2< .16A5?5N0 S 759=/ 3.1?:5789:5J .86<=>?1?/A K1@0/0/ @13.1A=8@5D AJ/K5? 4/.25./A1@58 3/=I5?8=>@EJ @1AE:/A 5 <28@5; A /BC8@55 5 A6152/K8;9?A55 9/ 9A8.9?@5:125 5 <75?8=D25 4565789:/; :<=>?<.EH /.01@561M55 9/A289?@/; <78B@/; 5 :/@9<=>?1?5A@/; K8D?8=>@/9?50

Z8@?.1=>@/; 5K88; :/@9?.<5./A1@5D <78B@/0/ 9/K8. I1@5D
5 3=1@5.<82EJ .86<=>?1?/A /B.16/A1@5D @1 <./A@8 /9@/A@/0/ /BC80/ /B.16/A1@5D DA=D8?9D A/935?1@58
M8=/9?@/; =57@/9?5 /B<71NC5J9D H /B893878@58 8K5@9?A1
A .16A5?55 5J 4565789:/; H 395J5789:/; 5 9/M51=>@/; 3.5./KE0 X81=561M5D [?/; 5K85 9?1@/A5?9D
A/62/I@/; @1 /9@/A8 9/K8. I1@5D <78B@/0/ 3.8K28?1H :/?/. /8 3.8K9?1A=D8?9D KA501?8=>@/;
K8D?8=>@/9?>N 9 8Y B16/AE25 :/23/@8@?125\ 5@4/.21M5/@@E2 j6@1@5D / 4565789:/; :<=>?<.8^H
/38.1M5/@1=>@E2 j93/9/BE 912/9?/D?8=>@/; K8D?8=>@/9?5^ 5 2/?5A1M5/@@/L3./M899<1=>@E2
j4565789:/8 9/A8. T8@9?A/A1@58^

S M8=DJ <95=8@5D 2/?5A1M5/@@/; 9/9?1A=DNC8; <78B@/0/ 3.8K28?1H 3.5K1@5D 8; =57@/9?@/
6@1752/0/ 92E9=1H 9/K8. I1@58 3./0.122E 3.8K9?1A=D8?9D 959?82/; 2/K<=8;H :/?/.E8 AJ/KD?
9?.<:/?<.@E25 :/23/@8@?125 A .16K8= VF565789:/8 9/A8. T8@9?A/A1@58W0

&@A1.51@?@E8 2/K<=5 A:=N71N? A 98BD 9/K8. I1@58 B16/AEJ A5K/A 93/.?1\ 052@19?5:1H =Y0:1D
1?=8?5:1H 652@58 A5KE 93/.?1 j@1 3.528.8 =EI@/; 3/K0/?/A:5^H 93/.?5A@E8 50.EH 3=1A1@580 _1@@E8
2/K<=5 A 9A/Y2 3.8K28?@/2 9/K8. I1@55 /.58@?5.<N?9D @1 A989?/.@@NN 4565789:<N
3/K0/?/A=8@@/9?> /B<71NC5J9D H /9A/8@58 525 ?8J@5789:5J K8;9?A5; 5 4565789:5J <3.1I@8@5;H
9/K8;9?A<NC5J /B/01C8@5N KA501?8=>@/0/ /3E?10

&@A1.51@?@E8 5 A1.51?5A@E8 2/K<=5 3./0.122E 2/0<? BE?> .81=56/A1@E
A 4/.28 98?8A/0/ A6152/K8;9?A5D 9 /.01@561M5D25 959?82E K/3/=@5?8=>@/0/ /B.16/A1@5DH @1
93/.?5A@EJ 3=/C1K:1J 5 61=1JH @1J/KDC5J9D A 2<@5M531=>@/;
5 .805/@1=>@/; 9/B9?A8@@/9?50

_ =D B899@8I@EJ .1;/@/A X/995;9:/; F8K8.1M55H 1 ?1:I8 3.5 /?9<?9?A55 K/=I@EJ <9=/A5;
K/3<9:18?9D 6128@D?> 5@A1.51@?@E; 2/K<=> V)EI@E8 0/@:5W <0=<B=Y@@E2 /9A/8@582 9/K8. I1@5D
K.<05J 5@A1.51@?@EJ 2/K<=8; jV)Y0:1D 1?=8?5:1WH VG52@19?5:1WH V!=1A1@58W 5 V\$3/.?5A@E8 50.EW^ S
9A/N /78.8K>H 2/K<=> V!=1A1@58W AA/K5?9D A <78B@E; 3./M899 3.5 @1=5755 9///?A8?9?A<NC5J <9=/A5; 5
21?8.51=>@/; B16E 3/ .8T8@5N 2<@5M531=>@EJ /.01@/A <3.1A=8@5D /B.16/A1@5820 _1@@E; 2/K<=>H
?1:I8 :1: 5 2/K<=> V)EI@E8 0/@:5WH 2/I8? BE?> 6128@Y@ <0=<B=Y@@E2 56<78@582 21?8.51=1 K.<05J
5@A1.51@?@EJ 2/K<=8;0

S1.51?5A@E8 2/K<=5 /BU8K5@8@E A 3./0.1228 2/K<=82 V\$3/.?WH 9/K8. I1@58 :/?/. /0/
.16.1B1?EA18?9D /B.16/A1?8=>@/; /.01@561M58; @1 /9@/A8 2/K<=>@EJ 3./0.122 3/ 4565789:/; :<=>?<.8
K=D /BC8/B.16/A1?8=>@EJ /.01@561M5;H .8:/28@K<82EJ ` 5@59?8.9?A/2 3./9A8C8@5D X/995;9:/;
F8K8.1M550 "9@/A@/; 9/K8. I1?8=>@/; @13.1A=8@@/9?>N A1.51?5A@EJ 2/K<=8; DA=D8?9D 3/K0/?/A:1
/B<71NC5J9D : AE3/=@8@5N @/.21?5A@EJ ?.8B/A1@5; S98./995;9:/0/ 456:<=>?<.@/L93/.?5A@/0/
:/23=8:91 G' "H 1:?5A@/8 A/A=878@58
5J A 9/.8A@/A1?8=>@<N K8D?8=>@/9?>0

&9J/KD 56 5@?8.89/A /B<71NC5J9DH ?.1K5M5; :/@: .8?@/0/ .805/@1
5=5 /B.16/A1?8=>@/; /.01@561M55H 2/K<=> V\$3/.?W 2/I8? .16.1B1?EA1?>9D <75?8=D25 4565789:/;
:<=>?<.E @1 /9@/A8 9/K8. I1@5D B16/A/; 4565789:/; 3/K0/?/A:5H @1M5/@1=>@EJ A5K/A 93/.?1H
9/A.828@@EJ /6K/. /A5?8=>@EJ 959?820
S 3./0.1228 A 3/2/C> <75?8=D2 4565789:/; :<=>?<.E A .12:1J K1@@/0/ 2/K<=D 3.8K9?1A=8@/
3.528.@/8 9/K8. I1@58 Va16/A/; 4565789:/; 3/K0/?/A:5W0

\$/K8. I1@58 3./0.122E 3/ 4565789:/; :<=>?<.8 56=/I8@/ 3/ 0/K12 /B<78@5DH 0K8 K=D :1IK/0/
:=1991 3.8K<92/? .8@ .16K8= Vb@5A8.91=>@E8 <78B@E8 K8;9?A5DWH A :/?/. /2 .19:.EA18?9D A:=1K
3.8K28?1 A 4/.25./A1@58 3/6@1A1?8=>@EJH :/22<@5:1?5A@EJ 5 .80<=D?5A@EJ K8;9?A5;H
9///?A8?9?A<NC5J A/62/I@/9?D2
5 /9/B8@@/9?D2 /B<71NC5J9D K1@@/0/ A/6.19?10)57@/9?@E8 K/9?5 I8@5D @83/9.8K9?A8@@/ 9AD61@E 9
:/@: .8?@E2 9/K8. I1@582 <78B@/0/ 3.8K28?1
5 3.8K9?1A=8@E 3/ 28.8 80/ .19:.E?5D0

\$/K8.I1@58 .1B/78; 3./0.122E 19:.E?58 =57@/9?@EJ
5 28?13.8K28?@EJ .86<=>?1?/A /B893875A18? 3.8829?A8@@/9?> 5 38.938:75A@/9?>
A /9A/8@55 /B=19?8; 6@1@5;H :/?/.E8 /?.1I1N? A8K<C58 5K85 <78B@EJ 3.8K28?/A /9@/A@/0/ /BC80/
/B.16/A1@5D 5 3/K7Y.:5A1N? 8Y 6@178@58 K=D 4/.25./A1@5D 0/?/A@/9?5 /B<71NC5J9D : K1=>@8;T82<
/B<78@5N @1 <./A@8 9.8K@80/ /BC80/ 5=5 9.8K@80/ 3./48995/@1=>@/0/ /B.16/A1@5D0

`(\$'" b c(a%"G" !X(_`(' + VF&,&c(\$ - + # - b)*' bX+W S b c(a%"` !)+%(

"BC5; /BUY2 719/AH /?A8KY@@EJ @1 56<78@58 <78B@/; K59M53=5@E VF565789:1D :<=>?<.1W A
/9@/A@/; T:/=8 9/9?1A=D8? def 719/A JKA1 7191 A @8K8=N A :1IK/2 :=1998^ P :=199 g hi 7j h :=199 g
hi 7j k :=199 g hi 7j i :=199 g hi 7H R :=199 Q hi 70

!.5 3/K0/?/A:8 3./0.122E 3/ 4565789:/; :<=>?<.8 <75?EA1=59> =57@/9?@E8 5
28?13.8K28?@E8 .86<=>?1?EH 6145:95./A1@@E8 A FG"\$ ""
5 A b@5A8.91=>@/2 :/K545:1?/.8 [=828@?/A 9/K8.I1@5D 5 ?.8B/A1@5;
:.86<=>?1?12 /9A/8@5D /9@/A@/; /B.16/A1?8=>@/; 3./0.122E /9@/A@/0/ /BC80/ /B.16/A1@5D0

\$"_(X1 +%&(b c(a%"G" !X(_`(' + VF&,&c(\$ - + # - b)*' bX+W

P -)+\$ \$

!"!#\$%&'(#)*+,01-2*3F565789:1D :<=>?<.1 A /9@/A@/; T:/=8\ 61K175H 9/K8.I1@58 5 4/.2E
/.01@561M55 61@D?5;0 \$59?821 K/3/=@5?8=>@/0/ /B<78@5D 4565789:/; :<=>?<.8j /.01@561M5D
93/.?5A@/; .1B/?E A /BC8/B.16/A1?8=>@/; T:/=80
F565789:1D :<=>?<.1 5 6K/./AE; /B.16 I56@5\ J1.1:?8.59?5:1 /9@/A@EJ 4/.2 61@D?5; 4565789:/;
:<=>?<./;H 5J 9AD6> 9 <.:83=8@582 6K/./A>DH /.01@561M58; /?KEJ1 5 K/9<010
&9?/.5789:58 9A8K8@5D /B "=5235;9:5J 50.1J _ .8A@8; G.8M55H J1.1:?8.59?5:1 5J 9/K8.I1@5D 5 3.1A5=
93/.?5A@/; B/.>BE0 X19MA8? 5 61A8. T8@58 59?/.55 "=5235;9:5J 50. K.8A@/9?50
45&+&67% + "8&+1&\$1*/0!&- %* \$1*/0 !X8I5#3K@D 5 80/ 6@178@58 K=D <71C5J9D T:/=EH 9AD6> 9
<29?A8@@/; .1B/?/93/9/B@/9?>N0 \$/9?1A=8@58 5@K5A5K<1=>@/0/ .8I521 K@Dj /3.8K8=8@58 /9@/A@EJ
5@K5A5K<1=>@EJ A5K/A K8D?8=>@/9?5H 5J A.828@@EJ K51316/@/A 5 3/9=8K/A1?8=>@/9?5 A AE3/=@8@55
F565789:/8 .16A5?58 78=/A8:1H 80/ 3/:161?8=5 5 93/9/BE 5628.8@5D0 "91@:1 :1: 3/:161?8=> 4565789:/0/
.16A5?5DH 3.1A5=1 3.8K<3.8IK8@5D 8Y @1.<T8@5; A <9=/A5DJ <78B@/; 5 BE?/A/; K8D?8=>@/9?50 \$3/9/BE
5628.8@5D 5 /M8@5A1@5D /91@:50
\$/9?1A=8@58 :/23=8:9/A 4565789:5J <3.1I@8@5; 9 :/.8:M5/@@/; @13.1A=8@@/9?>N 5 3.1A5= 5J
912/9?/D?8=>@/0/ 3./A8K8@5D0
!./A8K8@58 912/9?/D?8=>@EJ 61@D?5; 4565789:525 <3.1I@8@5D25 @1 /?:.E?EJ 3=/C1K:1J 5 A
K/21T@5J <9=/A5DJj 3/K0/?/A:1 289? 61@D?5;H AEB/ . /K8IKE 5 /B<A5j 3.8K<3.8IK8@58 ?.1A21?56210

"M8@5A1@58 9/9?/D@5D /.01@5621 A 3:/:8 5 3/9=8 4565789:/; @10.<6:5 A 3./M8998 912/9?/D?8=>@EJ
61@D?5; 4565789:/; :<=>?<.E 5 93/./?/20 \$/9?1A=8@58 K@8A@5:1 4565789:/; :<=>?<.E0
:(#)*+,&*%&;*2<*!+1;&;"!#F36:<=>?<.@/L/6K/./A5?8=>@1D K8D?8=>@/9?>0 X/=> 5 6@178@58
456:<=>?<.@/L/6K/./A5?8=>@/; K8D?8=>@/9?5 A 6K/./A/2 /B.168 I56@5 9/A.828@@/0/ 78=/A8:10
b3.1I@8@5D <?.8@@8; 61.DK:5 5 456:<=>?25<?/:H KEJ1?8=>@/; 5 6.5?8=>@/; 052@19?5:5 A 3./M8998
<78B@EJ 61@D?5;j 61:1=5A1NC58 3./M8K<.E 3/9=8 61@D?5; <?.8@@8; 61.DK:/;0 b3.1I@8@5D @1 .16A5?58
05B:/9?5 5 3/KA5 I@/9?5 9<9?1A/Aj .16A5?58 ://.K5@1M55j 4/.25./A1@58 ?8=/9=/ I8@5D 9
593/=>6/A1@582 A@8T@5J /?D0/C8@5;0
45&21#;!&(9&2&;#1*/0!"\$%9*\$1*/0 Bi 6@178@58 93/.?5A@/L/6K/./A5?8=>@/; K8D?8=>@/9?5 A
6K/./A/2 /B.168 I56@5 9/A.828@@/0/ 78=/A8:10
>&9./0%?@#8!" +1#, "A3

' (` + ' &c (\$ - " (!) + % & X " S + % & (_) # P -) + \$ \$ +

n 3o3	%1528@/A1@58 .16K8=/A 5 782 3./0.122E	- /=5789?A/ 719/A			p=8:?. /@@E8 JM54. /AE8^ /B.16/A1?8=>@E8 .89<.9E
		A980 /	: /@?0 .1B/? E	3.1:0 .1B/? E	
X16K8= q0 ,%+%&# " F&,&c (\$ - " r - b) * ' bX(
q0q	,@1@5D / 4565789:./; :<=>?<.8	q	f	q	sttuv\00wxvs0xyz0wzovz{ x}toRoP
&?/0/ 3/ .16K8=<		q			
X16K8=~0 \$! " \$ " am \$ + ` " \$ ' " # ' () *% " r _ (# ' () *% " \$ ' &					
~0q	\$3/9/BE 912/9?/D?8=>@/; K8D?8=>@/9?5	q	f	q	sttuv\00wxvs0xyz0wzovz{ x}toRoP
&?/0/ 3/ .16K8=<		q			
X16K8= d0 F&,&c (\$ - " (\$ " S (X i (% \$ ' S " S + %& (
d0q	@#8! " +1# , " % G8&9./0% ?@#8! " +1# , " A% >&9./0%	qe	P	R	sttuv\00wxvs0xyz0wzovz{ x}toRoP
d0~	B*D, " \$ % " 1/*1# , " %~f G8&9./0%BCD, " \$ % " 1/*1# , " A3%		k	qd	sttuv\00wxvs0xyz0wzovz{ x}toRoP
d0d	45&21# ; ! 7*% #D273% E " + , *16&/%G8&9./0% ?45&21# ; ! 7*% #D27		h	q~	sttuv\00wxvs0xyz0wzovz{ x}toRoP
d0e	45&21# ; ! 7*% #D273% F&/* - 6&/%G8&9./0% ?45&21# ; ! 7*% #D27AH		~	h	sttuv\00wxvs0xyz0wzovz{ x}toRoP
d0P	45&21# ; ! 7*% #D273% : .16&/%G8&9./0% ?45&21# ; ! 7*% #D27% AH		~	e	sttuv\00wxvs0xyz0wzovz{ x}toRoP
d0h	I &9D&1&; , " % , % ;75&/ ! * ! #J% ! &28" 1# ; ! 7K% 12*6&; " ! # - % ,&85/* , + " %L@MNL% G8&9./0%L45&21BH	S 3./M8998 <. /:1			sttuv\00 c c c 0ft0wz
&?/0/ 3/ .16K8=<		hh			
" a ¥ ((- ") &c (\$ ' S " c + \$ " S ! " ! X" GX+ ` ` (hi	~~	eh	

	1?=8?5:1W0 "9A/8@58 3.1A5= 5 ?8J@5:5 AE3/=@8@5D @/. 21?5A1 :/23=8:91 G' "0 a80 @1 K=5@@E8 K59?1@M55 9 .1A@/28.@/; 9:/./9?>N 38.8KA5 I8@5D 9 AE9/./0/ 9?1. ?10 X16A5?58 AE@/9=5A/9?50 "9A/8@58 3.1A5= 5 ?8J@5:5 AE3/=@8@5D @/. 21?5A1 :/23=8:91 G' "0					
R	` /K<=> V)80:1D 1?=8?5:1W0a80 @1 K=5@@E8 K59?1@M55 9 .1A@/28.@/; 9:/./9?>N 38.8KA5 I8@5D 9 AE9/./0/ 9?1. ?10 X16A5?58 AE@/9=5A/9?50 ,178? Q B80 qfff 20	q	q	L		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
qf	` /K<=> V\$3/. ?5A@E8 50.E0 a19:8?B/=W '8J@5:1 B86/319@/9?5 @1 <./:1J0 !.1A5=1 3.8K<3.8 I K8@5D ?.1A21?5621 A/ A.82D 61@D?5; 4565789:525 <3.1 I @8@5D25\ /.01@561M5D 289? 61@D?5;H 3/KB/. /K8 I KEH /B<A5 5 5@A8@?1.D0 !8.8K171 2D71 KA<2D .<:125 /? 0.<K5H @1 289?8 5 A KA5 I8@55H .1@88 .16<78@@E8 ?8J@5789:58 K8;9?A5D 9 2D7/20	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
qq	V\$3/. ?5A@E8 50.E0 a19:8?B/=W0 !8.8K171 2D71 KA<2D .<:125 /? 0.<K5H @1 289?8 5 A KA5 I8@55H .1@88 .16<78@@E8 ?8J@5789:58 K8;9?A5D 9 2D7/20	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
q~	V\$3/. ?5A@E8 50.E0 a19:8?B/=W0 !8.8K171 2D71 KA<2D .<:125 /? 0.<K5 @1 .86<=>?1?0	q	q	L		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
qd	V\$3/. ?5A@E8 50.E0 a19:8?B/=W0 S8K8@58 2D71 @1 289?8 5 A KA5 I8@55 V3/ 3.D2/;WH V3/ :.<0<W 5 V628;:/;W0	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
qe	V\$3/. ?5A@E8 50.E0 a19:8?B/=W0 S8K8@58 2D71 @1 289?8 5 A KA5 I8@55 V3/ 3.D2/;WH V3/ :.<0<W 5 V628;:/;W0	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
qP	V\$3/. ?5A@E8 50.E0	q	q	L		sttuv\00wXvs0xyz0wz0vz{ x }toRoP

	05B:/9?50					
~~	` /K<=> VG52@19?5:1W0 S59E 5 <3/.E @1 38.8:=1K5@80 S59E 3./9?E8j A59H @1 9/0@<?EJ .<:1JH 9/0@<A @/050 b3.1I @8@5D@1.16A5?58 05B:/9?50	q	L	q		sttuv\00wxvs0xyz0wz0vz{ x}toRoP
~d	` /K<=> VG52@19?5:1W0 S59E 5 <3/.E @1 38.8:=1K5@80 S59E 3./9?E8j A59H @1 9/0@<?EJ .<:1JH 9/0@<A @/050 b3.1I @8@5D@1.16A5?58 05B:/9?50	q	L	q		sttuv\00wxvs0xyz0wz0vz{ x}toRoP
~e	` /K<=> VG52@19?5:1W0 S59E 5 <3/.E @1 38.8:=1K5@80 b3.1I @8@5D@1.16A5?58 05B:/9?5					

	50.E0 a19:8?B/=W '8J@5:1 B86/319@/9?5 @1 <./:1J0 !.1A5=1 3.8K<3.8IK8@5D ?.1A21?5621 A/ A.82D 61@D?5; 4565789:525 <3.1I@8@5D25\ /.01@561M5D 289? 61@D?5;H 3/KB/. /K8IKEH /B<A5 5 5@A8@?1.D0 !8.8K171 2D71 KA<2D .<:125 /? 0.<K5H @1 289?8 5 A KA5I8@55H .1@88 .16<78@@E8 ?8J@5789:58 K8;9?A5D 9 2D7/20					
de	V\$3/.?5A@E8 50.E0 a19:8?B/=W0 !8.8K171 2D71 KA<2D .<:125 /? 0.<K5H @1 289?8 5 A KA5I8@55H .1@88 .16<78@@E8 ?8J@5789:58 K8;9?A5D 9 2D7/20	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x}toRoP
dP	V\$3/.?5A@E8 50.E0 a19:8?B/=W0 !8.8K171 2D71 KA<2D .<:125 /? 0.<K5 @1 .86<=>?1?0	q	q	L		sttuv\00wXvs0xyz0wz0vz{ x}toRoP
dh	V\$3/.?5A@E8 50.E0 a19:8?B/=W0 S8K8@58 2D71 @1 289?8 5 A KA5I8@55 V3/ 3.D2/;WH V3/ :.<0<W 5 V628;:/;W0	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x}toRoP
dk	V\$3/.?5A@E8 50.E0 a19:8?B/=W0 S8K8@58 2D71 @1 289?8 5 A KA5I8@55 V3/ 3.D2/;WH V3/ :.<0<W 5 V628;:/;W0	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x}toRoP
di	V\$3/.?5A@E8 50.E0 a19:8?B/=W0 S8K8@58 2D71 @1 289?8 5 A KA5I8@55 V3/ 3.D2/;WH V3/ :.<0<W 5 V628;:/;W0 ,178?0	q	q	L		sttuv\00wXvs0xyz0wz0vz{ x}toRoP
dR	V\$3/.?5A@E8 50.E0 a19:8?B/=W0 a./9/: 2D71 A :/.65@< KA<2D .<:125 /? 0.<K5 9 289?1j .1@88 .16<78@@E8 ?8J@5789:58 K8;9?A5D 9 2D7/20	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x}toRoP
ef	V\$3/.?5A@E8 50.E0 a19:8?B/=W0 a./9/: 2D71 A :/.65@< KA<2D .<:125 /? 0.<K5 9 289?1j .1@88 .16<78@@E8 ?8J@5789:58 K8;9?A5D 9 2D7/20	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x}toRoP
eq	V\$3/.?5A@E8 50.E0 a19:8?B/=W0 a./9/: 2D71 A :/.65@< KA<2D .<:125 /? 0.<K5 9	q	q	L		sttuv\00wXvs0xyz0wz0vz{ x}toRoP

	289?1 @1 .86<=>?1?0					
e~	` /K<=> V\$3/. ?5A@E8 50.E0 S/=8;B/=W0 '8J@5:1 B86/319@/9?5 @1 <./:1J0	q	L	q		sttuv\00wxvs0xyz0wz0vz{ x }toRoP
ed	` /K<=> V\$3/. ?5A@E8 50.E0 S/=8;B/=W0 !.D21D @5 I@DD 3/K171 2D710 X1@88 .16<78@@E8 ?8J@5789:58 K8;9?A5D 9 2D7/2	q	L	q		sttuv\00wxvs0xyz0wz0vz{ x }toRoP
ee	` /K<=> V\$3/. ?5A@E8 50.E0 S/=8;B/=W0 !.D21D @5 I@DD 3/K171 2D710 X1@88 .16<78@@E8 ?8J@5789:58 K8;9?A5D 9 2D7/2	q	L	q		sttuv\00wxvs0xyz0wz0vz{ x }toRoP
eP	` /K<=> V\$3/. ?5A@E8 50.E0 S/=8;B/=W0 !.D21D @5 I@DD 3/K171 2D710 X1@88 .16<78@@E8 ?8J@5789:58 K8;9?A5D 9 2D7/2	q	L	q		sttuv\00wxvs0xyz0wz0vz{ x }toRoP
eh	` /K<=> V\$3/. ?5A@E8 50.E0 S/=8;B/=W0 !.D21D @5 I@DD 3/K171 2D710 X1@88 .16<78@@E8 ?8J@5789:58 K8;9?A5D 9 2D7/2	q	q	L		sttuv\00wxvs0xyz0wz0vz{ x }toRoP
ek	` /K<=> V\$3/. ?5A@E8 50.E0 S/=8;B/=W0 !.5Y2 5 38.8K171 2D71 KA<2D .<:125 9@56< 5 9A8.J< @1 289?8 5 A KA5 I8@550 X1@88 .16<78@@E8 ?8J@5789:58 K8;9?A5D 9 2D7/2	q	L	q		sttuv\00wxvs0xyz0wz0vz{ x }toRoP
ei	` /K<=> V\$3/. ?5A@E8 50.E0 S/=8;B/=W0 !.5Y2 5 38.8K171 2D71 KA<2D .<:125 9@56< 5 9A8.J< @1 289?8 5 A KA5 I8@550 X1@88 .16<78@@E8 ?8J@5789:58 K8;9?A5D 9 2D7/2	q	L	q		sttuv\00wxvs0xyz0wz0vz{ x }toRoP
eR	` /K<=> V\$3/. ?5A@E8 50.E0 S/=8;B/=W0 !.5Y2 5 38.8K171 2D71 KA<2D .<:125 9@56< 5 9A8.J< @1 289?8 5 A KA5 I8@550 X1@88 .16<78@@E8 ?8J@5789:58 K8;9?A5D 9 2D7/2	q	q	L		sttuv\00wxvs0xyz0wz0vz{ x }toRoP
Pf	` /K<=> V)80:1D 1?=8?5:1W !.E I :5 A AE9/?< 9 3.D2/0/ .16B8010 X16A5?58 9:/./9?@/L95=/AEJ 93/9/B@/9?8;0	q	L	q		sttuv\00wxvs0xyz0wz0vz{ x }toRoP
Pq	` /K<=> V)80:1D 1?=8?5:1W !.E I :5 A AE9/?< 9 3.D2/0/ .16B8010 X16A5?58 9:/./9?@/L95=/AEJ	q	L	q		sttuv\00wxvs0xyz0wz0vz{ x }toRoP

	93/9/B@/9?8;0					
P~	` /K<=> V)80:1D 1?=8?5:1W !.EI:5 A AE9/?<9 3.D2/0/ .16B8010 X16A5?58 9:/./9?@/L95=/AEJ 93/9/B@/9?8;0 "9A/8@58 3.1A5= 5 ?8J@5:5 AE3/=8@5D @/.21?5A1 :/23=8:91 G' "0	q	q	L		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
Pd	` /K<=> V)80:1D 1?=8?5:1W0 '8J@5:1 B801 @1 :/./?:58 K59?1@M550 X16A5?58 BE9?./?E0	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
Pe	` /K<=> V)80:1D 1?=8?5:1W0 '8J@5:1 B801 @1 :/./?:58 K59?1@M550 X16A5?58 BE9?./?E0	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
PP	` /K<=> V)80:1D 1?=8?5:1W0 '8J@5:1 B801 @1 :/./?:58 K59?1@M550 X16A5?58 BE9?./?E0	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
Ph	` /K<=> V)80:1D 1?=8?5:1W0 '8J@5:1 B801 @1 :/./?:58 K59?1@M550 X16A5?58 BE9?./?E0	q	q	L		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
Pk	` /K<=> V)80:1D 1?=8?5:1W0 '8J@5:1 3.EI:1 A K=5@<9 .16B8010 X16A5?58 9:/./9?@/L95=/AEJ 93/9/B@/9?8;0	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
Pi	` /K<=> V)80:1D 1?=8?5:1W0 '8J@5:1 3.EI:1 A K=5@<9 .16B8010 X16A5?58 9:/./9?@/L95=/AEJ 93/9/B@/9?8;0 "9A/8@58 3.1A5= 5 ?8J@5:5 AE3/=8@5D @/.21?5A1 :/23=8:91 G' "0	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
PR	` /K<=> V)80:1D 1?=8?5:1W0 '8J@5:1 3.EI:1 A K=5@<9 .16B8010 X16A5?58 9:/./9?@/L95=/AEJ 93/9/B@/9?8;0	q	q	L		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
hf	` /K<=> V)80:1D 1?=8?5:1W0 '8J@5:1 B801 @1 K=5@@E8 K59?1@M550 X16A5?58 AE@/9=5A/9?50"9A/8@5 8 3.1A5= 5 ?8J@5:5 AE3/=8@5D @/.21?5A1 :/23=8:91 G' "0	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
hq	` /K<=> V)80:1D 1?=8?5:1W0 '8J@5:1 B801 @1 K=5@@E8 K59?1@M550 X16A5?58 AE@/9=5A/9?50	q	L	q		sttuv\00wXvs0xyz0wz0vz{ x }toRoP
h~	` /K<=> V)80:1D	q	q	L		sttuv\00wXvs0xyz0wz0vz{ x }toRoP

	1?=8?5:1W0 '8J@5:1 B801 @1 K=5@@E8 K59?1@M550 X16A5?58 AE@/9=5A/9?50					
hd	` /K<=> V\$3/.?5A@E8 50.EW0 F<?B/=0 '8J@5:1 B86/319@/9?5 @1 <./:80 bK1. 3/ @83/KA5 I@/2< 2D7< A@<?.8@@8; 9?/./@/; 9?/3E 9 @8B/>=>T/0/ .16B801	q	L	q		sttuv\00wxvs0xyz0wz0vz{ x }toRoP
he	` /K<=> V\$3/.?5A@E8 50.EW0 F<?B/=0 "9?1@/A:1 :1?DC80/9D 2D71 93/9/B/2 V@19?<31@5DW	q	L	q		sttuv\00wxvs0xyz0wz0vz{ x }toRoP
hP	V\$3/.?5A@E8 50.EW0 F<?B/=0 "9?1@/A:1 :1?DC80/9D 2D71 93/9/B/2 V@19?<31@5DW	q	q	L		sttuv\00wxvs0xyz0wz0vz{ x }toRoP

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F565789:1D :<=>?<.1H PLR :=1990` 1?A88A +0 !0H +:M5/@8.@/8 /BC89?A/ V&6K1?8=>9?A/
V! ./9A8C8@58W

F565789:1D :<=>?<.1H PLR :=1990` 1?A88A +0 !0H+:M5/@8.@/8 /BC89?A/ V&6K1?8=>9?A/
V! ./9A8C8@58Wj

F565789:1D :<=>?<.1H PLR :=1990 !8?./A1 '0S0H - /3E=/A § 0+0H !/=D@9:1D %0S0 5 K.<058H
"BC89?A/ 9 /0.1@578@@/ ; /?A8?9?A8@@/9?>N V&6K1?8=>9:5; M8@?. S (% ' +% +LGX+ FWj
+:M5/@8.@/8 /BC89?A/ V&6K1?8=>9?A/ ! ./9A8C8@58Wj

F565789:1D :<=>?<.1H PLR :=1990G<.>8A \$0S0j 3/K .8K1:M58; S5=8@9:/0/ ` 0#0H " " "
VX<99:/8 9=/A/L<78B@5:Wj

F565789:1D :<=>?<.10 PLR :=1990S5=8@9:5; ` 0#0H '<.8A9:5; &0` 0H ' / ./7:/A1 '0 § 0 5
K.<058j 3/K .8K1:M58; S5=8@9:/0/ ` 0#0H +:M5/@8.@/8 /BC89?A/ V&6K1?8=>9?A/
V! ./9A8C8@58Wj

[sttuv\oowxvs0xyz0wzo](#)

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:/23>N?8.@E; 9?/=

%/<?B<: <75?8=D

\$?8@:1052@19?5789:1D

a.8A@/ 052@19?5789:/8 @13/=>@/8

- /23=8:?@1A89@/0//B/ .<K/A1@5D

\$:12>D1?=8?5789:1D@1:=/@@1D

- /A.5: 052@19?5789:5;

` 1?E 052@19?5789:58

` D7 @1B5A@/ ;]q :0H ~ :0^

` D7 21=E;]?8@@59@E;^

\$:1:1=:1052@19?5789:1D

!1=:1 052@19?5789:1D

"B.<7 052@19?5789:5;

\$8?:1K=D38.8@/9121=EJ2D78;

X<=8?:15628.5?8=>@1D]qf2H Pf 2^

\$ " # # !&+ . d & # # !& !
A % # # !& -, %& !
, % ! + ! ! % %
M " & !
" # !& ! " !&
" # ! %
A % " # !&

