UNIVERSIT

T a 3:<$O3?GF .:?U$bIRM$3C+CGKLIMM$EC+C$
QKSM$

[,300$
P 3?$LZGRK;$LMLN$
T a 3:<GO3?$F .:?U$bIRM$3C+CGKLIMM$EC+C$
QKSM$

J13.9$
P 3?$LZGRK;$LMLN$
T a 3:<GO3?$F .:?U$bIRM$3C+CGKLIMM$EC+C$
QKSM$

'/,1.60$
P 3?$LZGRK;$LMLN$
T a 3:<GO3?$F .:?U$KIMM$EC+CG$NIRM$EC+C$
QKSM$

@"9,3:V]915#$$
P 3?$LZGRK;$LMLN$
T a 3:<GO3?$F .:?U$KIMM$EC+CG$NIRM$EC+C$
QKSM$

c#F*3.+*'3-7'8*+56+)3-L*'$.(70*/M**
*.#$RGW;$LMLN
O3?$F .:?G$QRLS$_$$
F2#,.16"/GQYZS$TQRLS`QRWMU$
T[#61.0$9.$*.#LG$'*.=3?$3</#,.99.U$
@"990#$9.#$<,9+$/"#$<9::9 7 1.6I$
%5/1.6$
P *0153:$!"#3/,#$
O#016.$3.=$!#5"$

!770.06-34',-56+)3.06-M'
c%::$F2#,.16"/$1./#.012#$0/*=#./0$71::$3,,12#$9.$'*.=3?$G$:3/#$3</#,.99.$<9,$&#610/,3/19.;$F,1#./3/19.;$&99+
30016.+#./0V*.E3581.6;$3.=$d2#.1.6$#2#./C

'/*=#./0$<9,$=3?G9.:?$1./#.012#0$0"9*:=$3,,12#$#3,:?$9.$/"#$<1,0/$=3?$<9,$6#.#,3:$1.0/,*5/19.0C$%::$'5"99:$9<$%,/$3.=$
O#016.$-./#.012#$0/*=#./0$0"9*:=$,#E9,/$/9$/"#$P 3,1#//3$@3+E*0$9.$P 9.=3?$+9,.1.6$.9/$/"#$(#..#03 7$@3+E*0C$$

%:9.6$71/"$E3?+#./;$?9*,$,#610/,3/19.$1.<9,+3/19.$+*0/$1.5:*=#$/"#$<9*,$<9,+0$>#:97C$%::$**QE&**"'+1.9,$
E9:15?$<9,+0$+*0/$>#$<1::#=$9*/$3.=$016.#=$>#<9,#$0/*=#./0e$,#610/,3/19.$10$59.01=#,#=$**L6)>4*.***C$$

J3,#./0$0"9*:=$<1::$9*/$/"#$&#^*1,#=$P 1.9,0$%*/"9,1f3/19.0$A9,+0C$d35"$@9::#6#$9<$/"#$%,/0$*.1/$71::$0#.=$<9,+0$
/",9*6"$O95*'16.C$
KC ('')$P 1.9,0$TJ3,/151E3./U$@9=#$9<$@9.=*5/
LC ('')$P 1.9,0$d+#,6#.5?$P #=153:$-.<9,+3/19.$A9,+
RC ('')$P 1.9,0$D312#,$3.=$&#:#30#GJ3,/151E3/19.$%6,##+#./$3.=$g13>1:1/?$D312#,
NC J158$)E$%*/"9,1f3/19.$A9,+

J:#30#$<1::$9*/$3.=$#:#5/,9.153::?$016.$/"#$<9,+0$30$099.$30$E9001>:#$/9$"9:=$?9*,$,#610/,3/19.C$

)E9.$9*,$,#5#1E/$9<$?9*,$59+E:#/#=$3EE:153/19.$3.=$E3?+#./;$?9*$71::$,#5#12#$3$59.<1,+3/19.$#+31:$/"3/$1.5:*=#0$9*,$,#59,=$9<$?9*,$E3?+#./$0/3/*0C$J:#30#$5"#58$/"10$1.<9,+3/19.$<9,$355*,35?$3.=$:#/$*0$8.97$9<$3.?$.#5#003,?$3=H*0/+#./0$,16"/$373?C$

D#$"9E#$/"3/$?9*$71::$>#$H91.1.6$*0$<9,$/"10$?#3,h0$1.5,#=1>:#$%,/0 (') $ ' *+ +#,$-./#.012#B$-<$?9*$"32#$3.?$^*#0/19.0;$E:#30#$59./35/$*0$3/$NWMGSWbGYWNL$9,$3,/0 i 8#..#037C#=*C$D#$3,#$:9981.6$<9,73,=$/9$0##1.6$?9*$/"10$'*++#,jk9$F7:0B$

'##$?9*$1.$*.#;$

a3,,109.$g9.6$$
-./#,1+$O#3.;$@9::#6#$9<$/"#$%,/0$

O,C$g#0:1#$\C$[:3587#::$
-./#,1+$%009513/#$O#3.;$@9::#6#$9<$/"#$%,/0$ L□□□

1. **N6) >4*.*' '*D0/.+3.06-'Q6+)** 'G'@9+E:#/#$/"#$&#^*1,#=$A9,+0$:953/#=$"#,#C
!"10$,#610/,3/19.$<9,+10,#^*1,#=$/9$3//#.=$/"#$%&!(')$'*++#,$-./#.012#C

2. **83J' '*D0/.+3.06-'Q**'**G$%$5,#=1/$53,=$10$,#^*1,#=$<9,$E3?+#./H**

3. **"*)0-7*+'G'N6) >4*.*'!44';' I 0-6+/'8640LJ'Q6+) /**
%::$<9,+0$+*0/$>#$<1::#=$9*/$3.=$016.#=$>#<9,#$/"#$0/*=#./0e$,#610/,3/19.$10$59.01=#,#=$59+E:#/#C
O95*'16.$<9,+0$71::$>#$0#./$>?$#35"$=#E3,/+#./$*E9.$,#610/,3/19.C

- @#::$E"9.#0$3,#$3::97#=$3/$/"#$1./#.012#$>*/$3,#$#4E#5/#=$/9$>#$9<<$=*,1.6$3::$0#0019.0;$5:300#0;$3.=,#"#3,03:0C
- '/*=#./0$<9,$92#,.16"/$71::$.9/$>#$3::97#=$/9$>,1.6$3$53,$9./9$53+E*0C
- '/*=#./0$,#610/#,#=$<9,$/"#$F2#,.16"/$-./#.012#$3,#$,#^*1,#=$/9$H91.$/"#$9,1#./3/19.$0#0019.$9.
'*.=3?$3</#,.99.$30$7#::$30$/"#$#2#.1.6$#2#./C$J:#30#$"32#$3/$:#30/$9.#$E3,#./$9,$6*3,=13.$E,#0#./<9,$/"#$9,1#./3/19.$0#0019.C

P304*J'$LF664'65' I (/0L'K3J'6-4JM' I 3J'9R'G'S?@'9:9;'
a3:<GO3?$P*015$bIRM$3+$GKLIMM$E+$9,$KIMM$E+GNIRM$E+'

$LF664'65'!+.'3-7'K*/0D-'K3J'6-4JM'T(-*'S'G'T(-*'U@'9:9;'
bIRM$3+$G$KLIMM$E+$@:300#0'
KLIMM$E+$G$KIMM$E+$g*.5"'
KIMM$E+$G$NIRM$E+$@:300#0$

K3-L*'K3J'6-4JM T(-*'S'G'T(-*'U@'9:9;

RIRM$E+$G$SIMM$E+$!"#3/,#$l$J#,<9,+3.5#$'/*=1#0$E:35#+#./$3*=1/19.0$
SIMM$E+$F2#,.16"/$&#610/,3/19.V@"#58G1.$$
SIKS$E+$G$SINS$E+$F,1#./3/19.$'#0019.$
F2#,.16"/$J3,/151E3./0$3,#$,#^*1,#=$/9$3//#.=$/"#$9,1#./3/19.$0#0019.$71/"$3/$:#30/$9.#$E3,#./V6*3,=13.$
E,#0#./C$
YIMM$E+$G$YINS$E+$@"#58G1.$3/$]1::36#$'*1/#0$
WIMM$O1..#,$3.=$#2#.1.6$35/121/1#0$<9,$/"#$F2#,.16"/$J3,/151E3./0B$

I6-73J@'T(-*'S'G'U@'9:9;M'

!"#$05"#=*:#$23,1#0$#35"$=3?$<9,$/"#$53+E$>*/$6#.#,3::?I$
WIRM$3+$G$bIRM$3+$[,#38<30/$
bIRM$3+$GKLIMM$E+$&#"#3,03:0V@:300#0$
KLIMM$E+$G$KIMM$E+$g*.5"$
KIMM$E+$G$NIRM$E+$,#"#3,03:0$3.=$5:300#0$
SIRM$E+$G$WIMM$E+$O1..#,$
WIMM$E+$d2#.1.6$%5/121/1#0$

!"#$%&'%(%)#+%,'-%./01213%145 56-%(7$6789:68;*

- %::$E#,09.3:$1/#+0;$/91:#/,1#0;$3.=$E#,09.3:$+#=153/19.0C
- [3/"$/97#:0C
- [#=$0"##/0;$>:3.8#/;$3.=$E1::97$<9,$3$01.6:#$>#=$9,$0:##E1.6>36T'"##/$01f#$<9,$=9,+$>#=0$10$!71.d4/,3Gg9.6UC
- %:3,+$5:958$30$.##=#=B
- @:9/"#0$<9,$/"#$7##8C$O,#00$<9,$%,/0('')$'*++#,$-./#.012#$10$530*3:C$%/":#/15$0"9#0$3,#$3$>#//#,5"915#$/"3.$<:1EG<:9E0$9,$03.=3:0$<9,$/"#$7##8$30$09+#$73:81.6$71::$>#$1.29:2#=C
- 'E#.=1.6$+9.#?$<9,$0.3580$3.=$2#.=1.6$+35"1.#0C

!"67%<%!"6-6%&'%(%='%,'-%/6=98$-#$9'7;%

$(-73J'T(-*'9@'9:9;'

O,C$[9>>1#$[31:#?$J#,<9,+3.5#$l$A3+1:?$@#./#,$
Nbb$J,1::3+3.$D3.:3J

J3,#./TOU$3.=$J3,/151E3./0$<9,$92#,.16"/$3,#$,#^*1,#=$/9$3//#.=$/"#$7#:59+#$0#0019.V9,1#./3/19.C$!9*,0$9<$/"#$
@9::#6#$9<$/"#$%,/0$71::$>#$3231:3>:#$<9,$E3,#./0$3.=$0/*=#./0$=*,1.6$/"#$3</#,.99.C$%</#,$/"#$9,1#./3/19.$0#0019.$
0/*=#./0$71::$+92#$1./9$/"#$]1::36#$'*1/#$"9*01.6C$'/*=#./0$71::$,#5#12#$/"#1,$=99,$8#?$355#00$/9$,99+0$1.$/"#$
]1::36#$'*1/#0C$'/*=#./0$,#610/#,#=$30$O3?$@3+E#,0$"32#$/"#$9E/19.$/9$+##/$9.$'*.=3?$#2#.1.6$#2#./$3.=$/"#$
3</#,.99.$9,1#./3/19.$0#0019.C$d35"$@F!%$*.1/$71::$0#.=$0E#51<15$=#/31:0$1.$#3,:?$0E,1.6$<9,$/"#1,$#2#.1.60$T:3/#$
3</#,.99.U$#2#./0B$

.,$6-%/6=98$-#$9'7%#7&%>-967$#$9'7%7'?%?"#$;%

%

'/*=#./0$71::$E:35#$/"#1,$>#:9.61.60$1.$/"#1,$,99+0$T+16"/$73./$/9$3/$:#30/$+38#$?9*,$>#=BU$3.=$E,95##=$/9$/"#$
3EE,9E,13/#$*.1/0$<9,$35/121/1#0C$d35"$*.1/$71::$0#.=$0E#51<150$<9,$/"10$:3/#,$/"10$'E,1.6$30$#43+E:#0$P*0153:$!"#3/,#$
71::$"90/$3.$3*=1/19.C$

!"#$%98%@#5)48%A'4897=%B9+6;%

%Dd'FPdB$(')$=9#0$.9/$"32#$=9,+0$7#$"32#$')-!d'B$
'*++#,$-./#.012#$0/*=#./0$71::$>#$"9*0#=$1.$/"#$]1::36#$'*1/#0;$59.2#.1#./:?$:953/#=$.#3,$/"#$[31:#?$@#./#,$3.=$
D1:09.$[*1:=1.6C$O3.5#$0/*=#./0$71::$>#$0"*//:#=$/9$@"30/31.$J91./#$213$P1.1G]3.0$3</#,$>,#38<30/$#2#,?$=3?$3.=$
,#/*,.#=$>?$SIMM$EC+C$g*.5"$71::$>#$0#,2#=$3/$@"30/31.$J91./#$<9,$O3.5#$0/*=#./0C$

!"##$%&'()"*&+'
%::$0*1/#$,99+0$3,#$31,G59.=1/19.#=$71/"$E,123/#$>#=,99+0$TK9,L>#=,99+0U$3.=$E,123/#$,#0/,99+0$E#,$0*1/#C$%O%G
59+E:13./$,99+0$3.=$E,123/#$,99+0$3,#$3231:3>:#$*.=#,$0E#513:$51,5*+0/3.5#0C$J:#30#$:#/$*0$8.97$1<$0E#513:$
3559++9=3/19.0$3,#$.##=#=B!

!"#$%?9CC%$"6%&#9CD%8*"6&4C6%E6%C9+6;%

%::$0/*=#./0$71::$>#$1.$5:300#0;$,#"#3,03:0;$9,$9/"#,$35/121/1#0$<,9+$bIRM$3+jZIKS$E+$#35"$=3?C$g*.5"10
0#,2#=$3/$.99.$71/"$=1..#,$3,9*.=$SIRM$E+C$!"#,#$71::$>#$09+#$<,##$/1+#$<9,$+90/$53+E#,0$1.$/"#$3</#,.99.0C$
m9*$+3?$*0#$/"10$/1+#$/9$09513:1f#$71/"$9/"#,$53+E#,0$1.$3EE,92#=$3,#30$9,$,#0/C$d35"$#2#.1.6$0/*=#./0$71::$
E3,/151E3/#$1.$3$0E#513:$35/121/?$E:3..#=C$J3,/151E3./0$71::$,#5#12#3+9,#$=#/31:#=$05"#=*:#$:3/#,$1.$/"#$0E,1.6$
<,9+$#35"$@9::#6#$9<$/"#$%,/0$).1/$TO3.5#V!"#3/,#VP*015V%,/UC$

A'?%&'%?6%=6$%#-'47&;%

-/$71::$>#$.#5#003,?$/9$73:8$/9$?9*,$5:300#0$3.=$+#3:0$#35"$=3?C$!"#$73:8$/38#0$9.:?3<#7$+1.*/#0C$
J3,/151E3./0$3,#$3=210#=$/9$7#3,$3/":#/15$0"9#0$/9$=31:?$35/121/1#0$3.=$>,1.6$3.$*+>,#::3$1.$530#$9<$,31.C$O3.5#$
0/*=#./0$7"9$3,#$92#,.16"/$71::$>#$0"*//:#=213+1.123./9$@"30/31.$J91./#$3</#,$>,#38<30/$#35"$+9,.1.6$3.=$
>358$/9$/"#$+31.$53+E*0$3/$=1..#,C$

!"#$%9,%(%E6*'56%9CC;%

-<$3$0/*=#./$>#59+#0$1::$7"1:#$3/$/"#$'*++#,$-./#.012#$71/"$3.$1.<#5/19*0$21,*0;$^*3,3./1.#$"9*01.6$10$3231:3>:#$/9$
/"#$0/*=#./$*./1:3E3,#./$53.$3,,12#C$d2#./$3.=$]#.*#$P3.36#+#./$E#,09..#:$10$9.G01/#$LNVW;$3.=$3231:3>:#10
3:73?0$(')$JO$3.=$ZKK30.##=#=C$J:#30#$59+E:#/#$/"#$"#3:/"$<9,+$/"9,9*6":?;$E3?1.6$0E#513:$3//#./19.$/9$3.?$
0E#51<15$3::#,61#0$9,$59.=1/19.0$/"3/$+3?$3EE:?$/9$?9*C$-$/"#,#$10$3$+#=153:$59.=1/19.$/"#$'*++#,$-./#.012#$0/3<<$
0"9*:=$8.97$9<;$E:#30#$/#::$*0$3>9*/$"10$>#<9,#$/"#$0/3,/$9<$/"10$7##8C$F<$59*,0#;$1<$?9*$6#/$0158$9,$"*,/;$7#$#4E#5/$
?9*$/9$:#/$*0$8.97$09$53.$"#:E$?9*$1++#=13/#:?C$

! "#$%#E '4$%$"6%C#8$%&#D;%

J#,<9,+3.5#0$71::$>#$"#:=$9.$A,1=3?$3</#,.99.$3/$"#$[31:#?$'5"99:$9<$ P *015$[*1:=1.6;$'/1::7#::$
J#,<9,+1.6$%,/0$@#./#,;$3.=$/"#$ P 3,1#//3$O3.5#$!"#3/,#$9.$/"#$ P 3,1#//3$@3+E*0C$%==1/19.3:$
1.<9,+3/19.$71::$>#$0#./$<,9+$#35"$*.1/$/"10$0E,1.6C$

/4C68%

&*:#0$3.=$J9:151#0$<9,$%&!'(')$'*++#,$-./#.012#0$53.$>#$<9*.=$9.$/"#$nk#.#,3:$&*:#0$3.=$
J9:151#0n$-.<9,+3/19.$'"##/$>#:97C$D#$#4E#5/$9*,$E3,/151E3./0$/9$3:73?0$>#"32#$3EE,9E,13/#:?;$71/"$
,#0E#5/$<9,$9/"#,$0/*=#./0$3.=$<9,$/"#$<351:1/1#0$9<$(#..#037$'/3/#$).12#,01/?C$o3/*,3::?;$7#$=9$.9/$

$