"

O M D

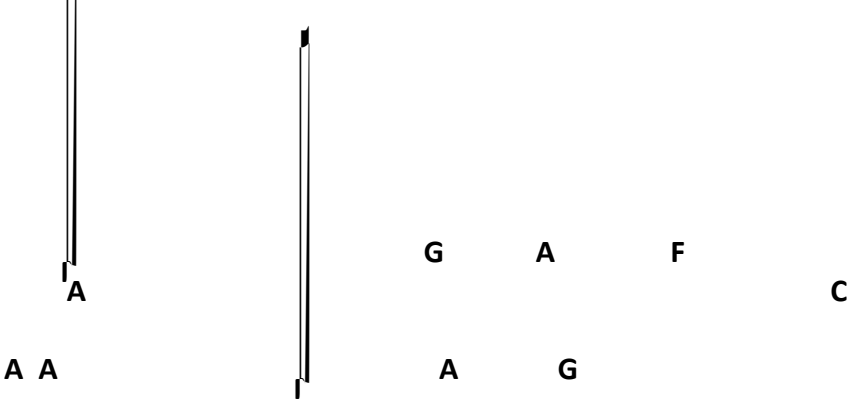
!"

"

"

ZI"1D@E ; "VD@"J? ; "JLL@C9> ; : ">@"F ; J : ; ?EDCL"VC>DC9">D ; "B@K KA9C>R"@G" : CEBCLF ; E"DJS ; "LJ?>CBAFJ?"
? ; EL@9ECQCFC>C ; E"C9"F ; J?9C9OT"> ; JBDC9O"J9 : "FCSC9OI"1D ; C?"FCSC9O"JGG ; B>E"J9 : "B@9 : C>C@9E">D ; C?"
F ; J : ; ?EDCLI"PR"SC?>A ; "@G">D ; C?"@GGCB ; T">D ; R"JFE@"E>J9 : "C9"J"LJ?>CBAFJ?

"


G A F
A C
A A A G

["

"

&@K K¢EE¢@9XE"S¢;V"J9:"VD;9"S¢;V;:"¢9">D;"F¢OD>"@G"(BD;:AF;"'"@?"(BD;:AF;")">@">D;"PJE¢E"@G"
69¢@9T"V@AF:"DJS;"L?;S;9>;:T"@?"VJE"F¢\;FR">@"DJS;"L?;S;9>;:T"D¢KdD;?"G?@K"Q;B@K¢9O"
@?:J¢9;:"@?"B@K K¢EE¢@9;:T"VD;?;"EABD"B@9:AB>"VJE"9@>":¢EBF@E;:"QR">D;"K¢9¢E>;?"@?"&$& 0"
>@">D@E;"?;EL@9E¢QF;"G@?"JEE;EE¢9O"D¢EdD;?"BJ9:¢:JBR"G@?"@?:¢9J>¢@9"@?"B@K K¢EE¢@9¢9OI"
"
+IZI!"-9">D;"¢9>;?;E>E"Q@>D"@G">D;"K¢9¢E>;?"@?"&$& 0"JE">D;"BJE;"KJR"Q;"J9:"@G">D;"VD@F;"
BDA?BDT">D;"*¢EB¢LF¢9J?R"#?@B;EE"@9B;"Q;0A9"ED@AF:"Q;"B@9:AB>;:"J9:"B@9BFA:;:"JE"
;<L;:¢>¢@AEFR"JE"L@EE¢QF;T"B@9E¢E>;9>"V¢>D">D;"L?@L;?"B@9:AB>"@G">D;"L?@B;:A?;EI"
"
+IZIZ"1@">D¢E";9:T">D;"*¢EB¢LF¢9J?R"#?@B;EE"¢KL@E;E">¢K;"F¢K¢>E"G@?">D;"SJ?¢@AE"E>;LE"VD¢BD"
DJS;">@"Q;">J\;9I"2@V;S;?"¢>"¢E";YAJFFR"¢9">D;"¢9>;?;E>E"@G"JFF">DJ>";S;?R"BJE;"V¢>D¢9">D;"
*¢EB¢LF¢9J?R"#?@B;EE"@9B;"Q;0A9"ED@AF:"9@>"Q;"JQ@?>;:T":;FJR;:"@?"D¢9:;?;:"QR"J9"A9:AFR"
9J??@V"@?"?;E>?¢B>¢S;"JLLF¢BJ>¢@9"@G">D;">¢K;"F¢K¢>E"@?"¢9:;;:"@G"J9R"@>D;?"JEL;B>E"@G">D;"
*¢EB¢LF¢9J?R"#?@B;EEI"
"
+I["+BB@?:¢9OFRT"VD;?;"A9:;?">D;"L?@S¢E¢@9E"@G">D¢E"*¢EB¢LF¢9J?R"#?@B;EE"J9R"9@>¢B;"EL;B¢G¢;E"
J">¢K;"F¢K¢>"G@?"J"B;?>J¢9"JB>¢@9">@"Q;">J\;9"QR">D;"?;B¢L¢;9>"J9:">DJ>"JB>¢@9"¢E"9@>"BJ??¢;:"@A>"
V¢>D¢9">D;">¢K;"EL;B¢G¢;:"¢9">D;"9@>¢B;">@">D;"EJ>¢E¢JB>¢@9"@G">D;"L;?E@9"@?"Q@:R"E;9:¢9O">D;"
9@>¢B;T">DJ>"L;?E@9"@?"Q@:R"EDJFF"DJS;"J":¢EB?;>¢@9">@"JFF@V"J"?;JE@9JQF;"GA?>D;?"L;?¢@:"G@?"
EABD"B@KLF¢J9B;T";<B;L>"JE"?;OJ?:E">D;"E>?¢B>">¢K;"F¢K¢>"¢KL@E;:"@9">D;"?¢OD>"@G"JLL;JF"
A9:;?"#J?JO?JLDE"++IbI!T"'I^I[I!"J9:"/I!"J9:"AL@9">D;"E>;LE">@"Q;">J\;9"QR">D;"(R9@:"
5@:;?J>@?"A9:;?"#J?JO?JLDE"++I!eIZI]"J9:"++I!eIZI^I"-9"@>D;?"BJE;ET"¢G">D;"L;?E@9"@?"Q@:R"
E;9:¢9O">D;"9@>¢B;"B@9E¢:;?E">DJ>"EAGG¢B¢;9>">¢K;"DJE"Q;;9"JFF@V;:"J9:">D;"JB>¢@9"?;YA¢?;:"
DJE"E>¢FF"9@>"Q;;9"BJ??¢;:"@A>"@?">D;?;"DJE"Q;;9"J9"A9?;JE@9JQF;":;FJR"¢9">D;"BJ??R¢9O"@A>"@G"
>D;"JB>¢@9"WVD;>D;?"@?"9@>">D;"*¢EB¢LF¢9J?R"#?@B;EE"¢KL@E;E"J">¢K;"F¢K¢>"G@?">D;"BJ??R¢9O"@A>"
@G">D;"JB>¢@9NT">DJ>"L;?E@9"@?"Q@:R"KJR"L?@B;;::T"Q;J?9O"¢9"K¢9:">D;"9;;:"G@?">D;"#?@B;EE"
>@"Q;"B@9:AB>;:"JE";<L;:¢>¢@AEFR"JE"L@EE¢QF;I"
"

]"

"

>D ; 9"℃9" ; ℃>D ; ?"BJE ; ">D ; "EALLFR">@">DJ>"Q@ : R"@G"EABD"℃9G@?KJ>℃@9"EDJFF"9@>"Q ; " : ; ; K ; : ">@"Q ; "J"
Q? ; JBD"@G"B@9G℃ : ; 9>℃JF℃>R"A9 : ; ?">D ; " * ℃EB℃LF℃9J?R"#?@B ; EEI"
"
+I^") @?">D ; "LA?L@E ; "@G">D℃E" * ℃EB℃LF℃9J?R"#?@B ; EET"J"? ; G ; ? ; 9B ; ">@"J9R"@G">D ; "(; B>℃@9E"+">@"U"
℃9BFA : ℃9O"(; B>℃@9"++"EDJFF"K ; J9"J"? ; G ; ? ; 9B ; ">@">DJ>"(; B>℃@9"℃9">D ; " * ℃EB℃LF℃9J?R"#?@B ; EE"J9 : "
>D ; "G@FF@V℃9O"V@? : E"J9 : " ; <L? ; EE℃@9E"BJ??R">D ; "G@FF@V℃9O"K ; J9℃9OE=3"
"
    W+LL ; JFE"&@K K℃EE℃@9X"EDJFF"K ; J9">D ; "&@K K℃EE℃@9"B@9E>℃>A> ; : "G@?">D ; "D ; J?℃9O"@G" ; JBD"
    +LL ; JF"℃9"JBB@? : J9B ; "V℃>D"(; B>℃@9" / I"
    "
    W+LL@℃9> ; ?EX"EDJFF"K ; J9T"G@?">D ; "LA?L@E ; E"@G">D ; "JLL@℃9>K ; 9>"@G"MCN">D ; "+EE ; KQFR"

^"
"

"

&$& 0 X"EDJFF"K ; J9"J"L ; ?E@9"VD@E ; "9JK ; "CE"@9">D ; "$@FF"@G"&DA?BD"$; FJ> ; : "&@K KA9C>R"
0 @?\ ; ?E"VD@"CE"A9 : ; ?"B@9EC : ; ?J>C@9"VC>DC9">D ; "*CEBCLFC9J?R"#?@B ; EE"MJ9 : "E ; ; "JFE@"
#J?JO?JLD"+I ! eNI"

"

W* ; F ; >C@9X"J9 : "W>@" : ; F ; > ; X"EDJFF"K ; J9">D ; "? ; K@SJF"@Gd>@"? ; K@S ; ">D ; "9JK ; "@G"J"KC9CE> ; ?"@?"
J"&$& 0 "G?@K">D ; "$@FF"@G" 5 C9CE> ; ?E"@?"&DA?BD"$; FJ> ; : "&@K KA9C>R" 0 @?\ ; ?E"JE">D ; "BJE ; "
KJR"Q ; "@>D ; ?">DJ9"J>">D ; "? ; YA ; E>"@G">D ; "KC9CE> ; ?"@?"&$& 0 "B@9B ; ?9 ; : "@?"QR">D ; "
JBB ; L>J9B ; "@G"DCEdD ; ?"? ; ECO9J>C@9"@?"QR"DCEdD ; ?" : ; J>DI"

"

W*C? ; B>C@9X"EDJFF"K ; J9"J" : C? ; B>C@9d : C? ; B>C@9E"VDCBD"J9"+EE ; KQFR"&@K KCEEC@9"@?"+LL ; JFE"
&@K KCEEC@9"KJR"J : : ">@"J" 0 ?C>> ; 9" 0 J?9C9O"QR"VDCBD"C>" : C? ; B>E">D ; "(R9@ : "
5 @ : ; ?J>@?d / ; 9 ; ?JF"+EE ; KQFR"$; L? ; E ; 9>J>CS ; ">@"E ; >"C9"K@>C@9"B ; ?>JC9"E> ; LE"VC>D"? ; 0J? : "
>@">D ; "KC9CE> ; ?d&$& 0 ">D ; "EAQ_ ; B>"@G">D ; "BJE ; I""") @?">D ; "JS@C : J9B ; "@G" : @AQ>T"J"*C? ; B>C@9"
BJ9"@9FR"Q ; "CEEA ; : "CG"JLL ; 9 : ; : ">@"J"V?C>> ; 9"VJ?9C9O"J9 : "

`"

"

(>J0;"M(;B>C@9"++N"B@AF:"9@>"?;JE@9JQFR";<L;B>">@"?;E>@?;">D;"&DA?BDXE"L?@L;?"
B@9GC:;9B;"C9">DJ>"KC9CE>;?I"
"
g/AC:;FC9;E"@9"&@9:AB>"J9:"P;DJSC@A?g"EDJFF"K;J9">D;"/AC:;FC9;E"@9"&@9:AB>"J9:"
P;DJSC@A?"G@?"5C9CE>;?E"@G"0@?:"J9:"(JB?JK;9>E"J9:">D;"/AC:;FC9;E"@9"&@9:AB>"J9:"
P;DJSC@A?"G@?"&$&0E"J:@L>;:"QR">D;"/;9;?JF"+EE;KQFR"@G">D;"&DA?BD"C9"UAFR"Ze!e"M@?"
J9R"EAQE;YA;9>"K@:CGCBJ>C@9">D;?;@GNI"
"
W2;J?C9OX"EDJFF"K;J9">D;"2;J?C9O"B@9:AB>;:"QR">D;"+EE;KQFR"&@KKCEEC@9"@?">D;"+LL;JFE"
&@KKCEEC@9"A9:;?"(;B>C@9"'"@?"(;B>C@9"/I"
"
W-9BJLJBC>R"#?@B;:A?;X"EDJFF"K;J9">D;"#?@B;:A?;"@L;?J>;:"QR">D;"69C>;:"$;G@?K;:"
&DA?BD"G@?">D;"LA?L@E;"@G":;JFC9O"VC>D"BJE;E"C9S@FSC9O">D;"C9BJLJBC>R"@G"KC9CE>;?E"@?"
&$&0E"J9:"B@9>JC9;:"C9"(;B>C@9"#"@G">D;"&DA?BDXE"5J9AJFI"
"
g-9C>CJF"&JA>C@9g"EDJFF"K;J9"J9"-9C>CJF"&JA>C@9"CKL@E;:"A9:;?"#J?JO?JLD"++I`I"
"
W-9C>CJF"'9YAC?RX"EDJFF"K;J9">D;";9YAC?R"BJ??C;:"@A>":A?9O">D;"#?;3&@KKCEEC@9"(>J0;"QR"
>D;"5J9:J>;:"/?@AL"C9"B@9_A9B>C@9"VC>D">D;"L;?E@9"BJFFC9O"C9">D;"5J9:J>;:"/?@AL"
A9:;?">D;"L?@SCEC@9E"@G"(;B>C@9"P"
"
W-9S;E>COJ>C@9X"EDJFF"K;J9">D;"L?@B;EE"@G"C9S;E>COJ>C@9"BJ??C;:"@A>"QR">D;"5J9:J>;:"
/?@AL"JE"E;>"@A>"C9"(;B>C@9"*I"
"
WU@C9>"#J9;FX"EDJFF"K;J9">D;"#J9;F"?;G;??;:">@"C9"#J?JO?JLD"PIZI[I"
"

@?"L@E>"@?"DJE"J9R"C9S@FS;K;9>T"LJC:"@?"A9LJC:T"VD;?;"EABD"Q@:R"@?"@?OJ9CEJ>C@9"V@AF:"
DJS;"J"?;JE@9JQF;"J9:"L?@L;?";<L;B>J>C@9"@G"Q;C9O"KJ:;"JVJ?;"@G">D;"LJ?>CBAFJ?"E>;LMEN"
Q;C9O">J\;9"J9:d@?"J9R"OAC:J9B;"Q;C9O"CEEA;:"A9:;?">D;"?;F;SJ9>"LJ?JO?JLD"@G">D;"
*CEBCLFC9J?R"#?@B;EE"C9"VDCBD">D;";<L?;EEC@9"W%A>EC:;"%?OJ9CEJ>C@9X"JLL;J?EI"
"

W#J?>C;EX"EDJFF"K;J9"MCN">D;"&@A9BCFT"VDCBD"G@?">D;"LA?L@E;"@G">D;"*CEBCLFC9J?R"#?@B;EE"EDJFF"
JB>"E@F;FR"J9:";<BFAECS;FR">D?@AOD">D@E;"JLL@C9>;:">@"?;L?;E;9>"C>"D;?;C9T"J9:"MCCN">D;"
KC9CE>;?"@?"&$& 0 I"
"

W#?;3

W(L;BCJF"+LL;JFE"P@:RX"EDJFF"K;J9">D;"Q@:R"JLL@C9>;:">@"D;J?"JLL;JFE"A9:;?"#J?JO?JLD"
'I^I["JOJC9E>"J"L?@L@E;:"?;G;?;9B;"QJB\"J9:"?;B@KK;9:J>C@9">@"B@KK;9B;">D;"
-9BJLJBC>R"#?@B;:A?;I"
"
W(>?AB>A?;X"EDJFF"K;J9">D;"(>?AB>A?;"@G">D;"69C>;:"$;G@?K;:"&DA?BDI"
"
W(AEL;9EC@9X"J9:"W>@"EAEL;9:X"EDJFF"DJS;">D;"K;J9C9OE"JEECO9;:">@">D;K"C9"#J?JO?JLDE"[
J9:"]"@G"(BD;:AF;"'">@">D;"PJECE"@G"69C@9"J9:">D;">DC?:"J9:"G@A?>D"LJ?JO?JLDE"@G"#J?>"--"@G"
(BD;:AF;")">@">D;"PJECE"@G"69C@9I"
"
W(R9@:X"EDJFF"K;J9">DJ>"(R9@:"VDCBD"C9"?;FJ>C@9">@"J9R"KC9CE>;?"@?"&$&0";<;?BCE;E"
@S;?ECOD>"@G">DJ>"KC9CE>;?"@?"&$&0"C9"JBB@?:J9B;"VC>D"C>E"GA9B>C@9"A9:;?"#J?JO?JLD"
ZM]NM+NM<SN"@G">D;"(>?AB>A?;I"
"
g(R9@:"+LL@C9>;;Eg"EDJFF"K;J9">D;"L;?E@9E"JLLE-3(?.2434)D;DJg"9(L)9E(F-8(9)4((9)4(1T)-Z(g(1T)-02(

"

!e"

"

*ℂEBℂLFℂ9J?R"#?@B;EET"ℂ>"EDJFF"Q;">J\;9"JE"Q;ℂ9O";YAJFFR"?;G;?JQF;">@"J"&$& 0 "@?">@">D;"$@FF"@G"
&$& 0 E"@?">@">D;"@GGℂB;"@G"&$& 0 "JE">D;"BJE;"KJR"Q;T"A9F;EE"EABD"B@9E>?AB>ℂ@9"ℂE"L?;BFA:;:"
QR">D;"B@9>;<>I"
"
+I!!"1D;"&DA?BD"?;B@O9ℂE;E">DJ>T"G?@K">ℂK;">@">ℂK;T"BJE;E"GJFFℂ9O"Vℂ>Dℂ9">D;"*ℂEBℂLFℂ9J?R"
#?@B;EE"KJR"J>>?JB>">D;"J>>;9>ℂ@9"@G">D;"9J>ℂ@9JF"@?"F@BJF"L?;EE"J9:"@>D;?"K;:ℂJ"
@?OJ9ℂEJ>ℂ@9E"J9:"JA>D@?ℂE;E"(R9@:"5@:;?J>@?ET"+EE;KQFR"%GGℂB;?E"J9:">D;"(;B?;>J?R"@G">D;"
+EE;KQFR"&@KKℂEEℂ@9">@"EALLFR">@">D;"#?;EE"%GGℂB;?"EABD"ℂ9G@?KJ>ℂ@9"JE"EdD;"KJR"
?;JE@9JQFR"?;YAℂ?;">@":;JF"VℂD"JFF"L?;EEdK;:ℂJ";9YAℂ?ℂ;E"ℂ9"J">JB>GAF"J9:":ℂEB?;;>"KJ99;?"E@"
JE">@"L?@>;B>">D;"ℂ9>;?;E>E"@G">D;"&DA?BDT">D;"Kℂ9ℂE>;?"J9:"JFF"@>D;?E"ℂ9S@FS;:"ℂ9">D;"BJE;I"

+I!`IZ"1D;"*ℂEBℂLFℂ9J?R"#?@B;EE"KJR"Q;"ℂ9ℂ>ℂJ>;:"ℂ9"?;EL;B>"@G"J"KℂℂE>;?"@?"&$& 0"JE"J"?;EAF>"
@G"J"?;B@KK;9:J>ℂ@9"ℂEEAℂ9O"G?@K">D;"-9BJLJBℂ>R"#?@B;:A?;T"ℂ9"VDℂBD"BJE;">D;?;"KJR"Q;"J"
ED@?>">?J9EℂℂE>ℂ@9JF"@S;?FJL"Q;>V;;9">D;"B@KK;9B;K;9>"@G">D;"*ℂEBℂLFℂ9J?R"BJE;"J9:">D;"
B@9BFAEℂ@9"@G">D;"BJE;"VℂℂE>DℂE9">D;"-9BJLJBℂ>R"#?@B;:A?;I"

AA C

"

++I!I!"1DℂE"(;B>ℂ@9"++"E;>E"@A>"J"&JA>ℂ@9"(>J0;"VDℂBD"L?@Sℂ:;E">D;"K;BDJ9ℂEK"VD;?;QR"J9"
;9YAℂ?R"BJ9"Q;"E;>"AL">@";<JKℂ9;"KJ>>;?E"@G"B@9B;?9"ℂ9S@FSℂ9O"KℂℂE>;?E"VDℂBD"GJFF"ED@?>"@G"
/?@EE"5ℂEB@9:AB>T"F;J:ℂ9OT"ℂG"JLL?@L?ℂJ>;T">@"J9"-9ℂ>ℂJF"&JA>ℂ@9"J9:"J")ℂ9JF"&JA>ℂ@9"Q;ℂ9O"
ℂEEA;:">@">D;"KℂℂE>;?"ℂ9">D;"G@?K"@G"V?ℂ>>;9"9@>ℂB;EI"

"

++I!IZ"+9R"EABD"KJ>>;?E"@G"B@9B;?9"EDJFF"@9FR"GJFF"VℂℂD9">D;"*ℂEBℂLFℂ9J?R"#?@B;EE"ℂG"
:;K@9E>?J>ℂ9O"J":;O?;;"@G"QFJK;V@?>DℂℂE"J>>?ℂQA>JQF;">@":;FℂQ;?J>;"ℂ9>;9>"@?">@"J"QFJ>J9>"
FJB\"@G"BJ?;"J9:"B@9B;?9T">D;";GG;B>"@G"VDℂBDT"ℂG"EAQE>J9>ℂJ>;:T"V@AF:"ℂ9:ℂBJ>;"J"Q?;JBD"@G"
>D;"B?ℂ>;?ℂJ"FJℂ:":@V9"ℂ9"#J?JO?JLD"+I!I]I"-9">D;"JQE;9B;"@G">D;E;";F;K;9>ET"9@"BJE;"G@?"
:ℂEBℂLFℂ9;"J?ℂE;E"A9:;?">DℂE"(;B>ℂ@9"++I"

"

++I!I["-G"J>"J9R">ℂK;":A?ℂ9O">D;"&JA>ℂ@9"(>J0;">D;"(R9@:"5@:;?J>@?"Q;B@K;E"JVJ?;"@G"J9R"
ℂ9G@?KJ>ℂ@9"EAOO;E>ℂ9O">D;"L@EEℂQℂFℂ>R"@G"/?@EE"5ℂEB@9:AB>"@9">D;"LJ?>"@G">D;"KℂℂE>;?T"EdD;"
EDJFF"DJS;">D;"L@V;?">@"Q?ℂ9O">D;"&JA>ℂ@9"(>J0;">@"J9"ℂKK;:ℂJ>;"B@9BFAEℂ@9"J9:"BJFF"ℂ9"J"
5J9:J>;:"O?@AL">@"B@KK;9B;"ℂ>E"#?;3&@KKℂEEℂ@9"(>J0;"ℂ9"JBB@?:J9B;"VℂℂD"(;B>ℂ@9"PI"+9R"
?;F;SJ9>"ℂ9G@?KJ>ℂ@9"JF?;J:R"OJ>D;?;:"VℂℂD9">D;"&JA>ℂ@9"(>J0;"EDJFF"Q;"LJEE;:"@9">@">D;"
5J9:J>;:"/?@AL"J9:">D;"(R9@:"5@:;?J>@?"EDJFF":ℂEBDJ?O;">D;"(R9@:"+LL@ℂ9>;;E"G?@K"J9R"
GA?>D;?"?;EL@9EℂQℂFℂ>RI"

"

++I!I]I!"$;G;?;9B;E"ℂ9">DℂE"(;B>ℂ@9"++">@">D;"(R9@:"5@:;?J>@?"BJ9"JFE@"Q;">J\;9"JE"J"
?;G;?;9B;">@">D;"/;9;?JF"+EE;KQFR"$;L?;E;9>J>ℂS;T";<B;L>"VD;?;"L?;BFA:;:"QR">D;"B@9>;<>I"

"

++I!I]IZ"+FF"V?ℂ>>;9"9@>ℂB;E"?;YAℂ?;:">@"Q;"OℂS;9"QR">D;"(R9@:"+LL@ℂ9>;;E">@">D;"(R9@:"
5@:;?J>@?"J9:d@?">D;"KℂℂE>;?"A9:;?">D;"L?@SℂEℂ@9E"@G">DℂE"(;B>ℂ@9"++"EDJFF"E;>"@A>">D;"
?;JE@9E"G@?">D;"OℂSℂ9O"@G"EABD"9@>ℂB;I"

++I!I^I!"+B>ℂ9O"ℂ9"JBB@?:J9B;"VℂℂD"#J?JO?JLD"++I!I^IZT";JBD"(R9@:"EDJFF"JLL@ℂ9>">V@"
L;?E@9E"M\9@V9"JE"f>D;"(R9@:"+LL@ℂ9>;;EfN">@"B@9:AB>">D;";9YAℂ?R"A9:;?">D;"&JA>ℂ@9"(>J0;"
J9:">@">J\;"EABD"@>D;?"JB>ℂ@9E"JE"J?;"?;YAℂ?;::"A9:;?">DℂE"(;B>ℂ@9"++"J9:">V@"L;?E@9E">@"JB>"
JE"?;E;?S;E"G@?"EABD"LA?L@E;E"ED@AF:">D;"L?ℂ9BℂLJF"JLL@ℂ9>;;E"Q;"A9JQF;"G@?"VDJ>;S;?"
?;JE@9">@"JB>"ℂ9">DJ>"BJLJBℂ>R"ℂ9"J"LJ?>ℂBAFJ?"BJE;I"

"

++I!I^IZ"1D;"5@:;?J>@?"@G">D;"(R9@:"ℂ9"B@9EAF>J>ℂ@9"VℂℂD"EABD"%GGℂB;?E"@G">D;"(R9@:"JE"EdD;"
B@9Eℂ:;?E"JLL?@L?ℂJ>;"EDJFF"G@?>DVℂℂD"JLL@ℂ9>">V@"L;?E@9E">@"JB>"JE">D;"(R9@:"+LL@ℂ9>;;E"
MJ9:"?;E;?S;EN"ℂ9"J9R"LJ?>ℂBAFJ?"BJE;"ℂ9">D;"G@FF@VℂℂO"KJ99;?="MCN"EdD;"EDJFF"JLL@ℂ9>">D;"GC?E>"
@G">D;"(R9@:"+LL@ℂ9>;;E"G?@K">D;"U@ℂ9>"#J9;F"MVℂℂD"J9@>D;?"G?@K">D;"U@ℂ9>"#J9;F">@"JB>"JE"
?;E;?S;N"J9:"MCN"EdD;"EDJFF"JLL@ℂ9>"JE">D;"E;B@9:"(R9@:"+LL@ℂ9>;;"@9;"@G">D;"G@FF@VℂℂOT">DJ>"
ℂE="MJN"@9;"L;?E@9"G?@K"ℂ>E"@V9"(R9@:"#J9;F"@?"(DJ?;:"(R9@:"#J9;F"@?"MQN"@9;"L;?E@9"G?@K"
>D;"(R9@:"#J9;FMEN"@G"J9@>D;?"ER9@:"@?">D;"(DJ?;:"(R9@:"#J9;F"@G"J9@>D;?"O?@AL"@G"(DJ?ℂ9O"

"

>D;"69C>;:"$;G@?K;:"&DA?BD"VC>D"F;OJFT">?CQA9JF"@?"@>D;?"JLL?@L?CJ>;"L?@G;EEC@9JF"
;<L;?C;9B;I"(dD;"EDJFF"JFE@"JLL@C9>"C9">D;"EJK;"KJ99;?"@9;"L;?E@9">@"JB>"JE"?;E;?S;">@">D;"
E;B@9:"(R9@:"+LL@C9>;;"MQA>"E;;"#J?JO?JLD"++I!I^I^NI"0D;9"KJ\C9O"JLL@C9>K;9>E"A9:;?"
MCCNMQN"JQ@S;T">D;"5@:;?J>@?"@G">D;"(R9@:"EDJFFT"C9">D;"BJE;"@G"J"EC9OF;"(R9@:"#J9;FT"C9G@?K"
>D;"5@:;?J>@?"@G">DJ>"(R9@:"@G"EABD"JLL@C9>K;9>"J9:T"C9">D;"BJE;"@G"J"(DJ?;:"(R9@:"#J9;FT"
C9G@?K">D;"&@3@?:C9J>@?"@G">DJ>"#J9;F"@G"EABD"JLL@C9>K;9>T"VD;>D;?"C>"J?CE;E"A9:;?"MCCNMJN"@?"
MCCNMQN"JQ@S;T"J9:">D;"&@3@?:C9J>@?"EDJFF"C9">A?9"C9G@?K">D;"5@:;?J>@?E"@G">D;"(DJ?C9O"(R9@:E"
C9">DJ>"/?@ALI"
"
++I!I^I["-G"J9R"K;KQ;?"@G"J"(R9@:"#J9;F"@?">D;"U@C9>"#J9;F"CE"J"K;KQ;?"@G"J"F@BJF"BDA?BD"
B@99;B>;:"VC>D">D;"BJE;"@?"DJE"J9R"LJE>@?JF"@?"L;?E@9JF"C9S@FS;K;9>"C9">D;"BJE;"@?"CE">D;"
EAQ_;B>"@G"J":CEBCLFC9J?R"B@KLFJC9>T">DJ>"L;?E@9"EDJFF"9@>"Q;"@9;"@G">D;"(R9@:"+LL@C9>;;E"G@?"
>DJ>"BJE;I"
"
++I!I^I]"-9">D;";S;9>">DJ>"@9;"@G">D;"(R9@:"+LL@C9>;;E"CE"@QFCO;:">@"VC>D:?JV":A?C9O">D;"
&JA>C@9"(>JO;T">D;"?;E;?S;"JLL@C9>;:"G?@K">D;"EJK;"#J9;F"KJRT"EAQ_;B>">@">D;"JLL?@SJF"@G"
>D;"5@:;?J>@?"@G">D;"(R9@:"G@FF@VC9O"B@9EAF>J>C@9"VC>D"EABD"@GGCB;?E"@G">D;"(R9@:"JE"EdD;"
B@9EC:;?E"JLL?@L?CJ>;T">J\;"@S;?"DCEdD;?"L@EC>C@9"J9:T"_@C9>FR"VC>D">D;"@>D;?"(R9@:"
+LL@C9>;;T"B@9>C9A;"VC>D">D;";9YAC?RT"_@C9"C9"CEEAC9O"&JA>C@9E"MCG"B@9EC:;?;::"9;B;EEJ?RN"J9:"
Q?C9O">D;"&JA>C@9"(>JO;">@"C>E"B@9BFAEC@9I"(D@AF:">D;"5@:;?J>@?"@G">D;"(R9@:T"G@FF@VC9O"EABD"
B@9EAF>J>C@9"JE"E>J>;:"JQ@S;T"B@9EC:;?">DJ>"C>"V@AF:"9@>"Q;"JLL?@L?CJ>;"C9">D;"BJE;"
B@9B;?9;:">@"J:@L>";C>D;?">D;"L?@B;:A?;"@A>FC9;:"JQ@S;"@?">D;"L?@B;:A?;"E;>"@A>"C9"
#J?JO?JLD"++I!I^I^T"EdD;"VCFF":CEBDJ?O;">D;"(R9@:"+LL@C9>;;E"J9:"JLL@C9>">V@"9;V"@9;E"C9"
JBB@?:J9B;"VC>D">D;"JQ@S;"L?@B;:A?;I"
"
++I!I^I^"(D@AF:">D;?;"Q;"J"SJBJ9BR"VDCBD"CE"?;YAC?;:">@"Q;"GCFF;:"QR"JLL@C9>K;9>"G?@K">D;"

℃9℃>℃J>;">D;"&JA>℃@9"(>J0;"℃9"?;FJ>℃@9">@"J9R"LJ?>℃BAFJ?"K℃9℃E>;?T"EdD;"EDJFF"G@FF@V">D;"

!]"

"

©9"VD©BD"BJE;"#J?JO?JLD"PI`I["JLL£©;EI""""+£E@">D;"©9©>©J>©@9"@G">D;"&JA>©@9"(>JO;"V©£F"9@>"
9@?KJ£FR"©9S@£S;">D;"EAEL;9E©@9"@G">D;"K©9©E>;?I"
"
++IZIa""-9"LA?EA©9O">D;©?";9YA©?R"©9"J"BJE;"?;G;??;:">@">D;K"A9:;?">D;"#J?JO?JLD"PIbI]"
L?@B;:A?;T">D;"(R9@:"+LL@©9>;;E"EDJ£F"DJS;"9@":©?;B>"L;?E@9J£"B@9>JB>"@G"J9R"\©9:"V©>D"J9R"
K;KQ;?"@G">D;"5J9:J>;:"/?@AL"©9">DJ>"BJE;I"
"
++IZIb"+>"J£F"K;;>©9OE"V©>D">D;"(R9@:"+LL@©9>;;ET">D;"K©9©E>;?"J9:"J9R"@>D;?"L;?E@9E"
©9>;?S©;V;:"QR">D;"(R9@:"+LL@©9>;;E"KJRT"©G">D;R"V©EDT"Q;"JBB@KLJ9©;:"QR"J"G?©;9:I"
"
++IZIc"1D;"©9©>©J>©@9"@G">D;"&JA>©@9"(>JO;"V©£F"9@>"9@?KJ£FR"©9S@£S;">D;"EAEL;9E©@9"@G">D;"
K©9©E>;?I"
"
++IZI!e"&JE;E"Q;©9O"B@9E©:;?;:"QR">D;"(R9@:"+LL@©9>;;E"JG>;?"?;G;??J£"A9:;?">D;"#J?JO?JLD"
PIbI]"L?@B;:A?;"EDJ£F"Q;"EAQ_;B>"@">D;"L?@S©E©@9E"@G">D©E"(;B>©@9"++"©9">D;"EJK;"KJ99;?"JE"
@>D;?"BJE;ET"EJS;"@9£R"JE"?;OJ?:E"J9R":©GG;?;9B;E"K;9>©@9;:"©9"J9R"@G">D;"L?;B;:©9O"EAQ3
LJ?JO?JLDE"@G">D©E"#J?JO?JLD"++IZI"
"
++I["1D;"LA?L@E;"@G">D;";9YA©?R"©E">@";E>JQ£©ED"VD;>D;?T"©9">D;"@L©9©@9"@G">D;"(R9@:"
+LL@©9>;;ET">D;"KJ>>;?E"@G"B@9B;?9"?;G;??;:">@"©9"#J?JO?JLD"++IZI]T"VD©£E>">D;R"KJR"GJ£F"
ED@?>"@G"/?@EE"5©EB@9:AB>T":@"9@9;>D;F;EE"JK@A9>">@"J"GJ©FA?;"@9">D;"LJ?>"@G">D;"
K©9©E>;?d&$&0">@"F©S;"AL">@">D;"L?@K©E;E"VD©BD"EdD;"KJ:;"J>"@?:©9J>©@9dB@KK©EE©@9©9O"
ME;;"#J?JO?JLD"+I!I]N"J9:"VD;>D;?"©G">D;"(R9@:"+LL@©9>;;E":@"B@K;">@">DJ>"B@9BFAE©@9"©>"
V@A£:"Q;"JLL?@L?©J>;"G@?">D;K">@"©EEA;"J"&JA>©@9"©9">D;"G@?K"@G"J"V?©>>;9"9@>©B;">@">D;"
K©9©E>;?"J9:T"©G"E@T"©9"VDJ>">;?KE"@?T"©G">D;R"B@9E©:;?">D;"BJE;"K@?;"E;?©@AET"VD;>D;?">@"
?;B@KK;9:">@">D;"(R9@:"5@:;?J>@?">DJ>"EdD;"ED@A£:">J\;">D;"BJE;"@9">@">D;"9;<>"E>JO;"@G"
>D;"*©EB©LF©9J?R"#?@B;EE"QR"BJ£F©9O"©9"J"5J9:J>;:"/?@AL"A9:;?"(;B>©@9"PI"
"
++I]I!"1D;"(R9@:"+LL@©9>;;E"V©FF"DJS;":©EB?;>©@9"JE">@">D;"KJ99;?"©9"VD©BD">D;R"B@9:AB>"
>D;©?";9YA©?R"©9">D;"F©OD"@G">D;"B©?BAKE>J9B;E"@G">D;"BJE;I"2@V;S;?T"JE"J"O;9;?J£"?A£;">D;"
G@FF@V©9O"E>;LE"ED@A£:"Q;">J\;9="
"
++I]I!I!"1D;"(R9@:"+LL@©9>;;E"ED@A£:"J>">D;";J?F©;E>"L@EE©QF;"E>JO;"©9">D;©?";9YA©?R"E;;\"J"
K;;>©9O"V©>D">D;"K©9©E>;?I"
"
++I]I!IZ"+>">D;"@A>E;>"@G">DJ>"K;;>©9O">D;"(R9@:"+LL@©9>;;E"ED@A£:";<LFJ©9">DJ>">D;"
LA?L@E;"@G">D;"K;;>©9O"©E">@"?J©E;"V©>D">D;"K©9©E>;?">D;"B@9B;?9E"E;>"@A>"©9">D;"E>J>;K;9>"
?;G;??;:">@"©9"#J?JO?JLD"++IZI]"J9:">@"KJ\;"BF;J?">DJ>">D;"@A>B@K;"K©OD>"Q;">D;"©EEA;"@G"J"
&JA>©@9"@?"&JA>©@9E"@?";S;9"M©G">D;"(R9@:"+LL@©9>;;E"S©;V;:">D;"KJ>>;?"JE"EAGG©B©;9>£R"
E;?©@AE"J9:"V©>D@A>"©EEA©9O"J9R"BJA>©@9EN"J"?;B@KK;9:J>©@9">@">D;"(R9@:"5@:;?J>@?">@"BJ£F"
©9"J"5J9:J>;:"/?@AL"J9:">DAE">J\;">D;"KJ>>;?":©?;B>£R"@9">@">D;"9;<>"E>JO;"@G">D;"
*©EB©LF©9J?R"#?@B;EEI"
"

"

B@9B;?9"J9:"JE">@"D@V">D;"L?@QF;KE"ED@AF:"Q;"?;E@FS;:I"-G">D;"KC9CE>;?"CE"B@3@L;?J>CS;"J9:"JO?;;E">@">D;"JBBA?JBR"J9:"SJFC:C>R"@G">D;"B@9B;?9E";<L?;EE;:"QR">D;"(R9@:"5@:;?J>@?T">D;"(R9@:"+LL@C9>;;E"KJR"V;FF"G;;F"JQF;">@"@KC>">D;"E>;LE"EAOO;E>;:"

++I^I[IZ"(D@AF:">D;"(R9@:"5@:;?J>@?"Q;"A9V©FF©9O">@"JBB;L>">D©E"?;B@KK;9:J>©@9T"EdD;"
KJR"V©>D©9">V@"K@9>DE"@G"?;B;©L>"@G">D;©?"9@>©B;"O©S;">@";JBD"@G">D;"(R9@:"+LL@©9>;;E"
V?©>>;9"9@>©B;"?;YA;E>©9O">D;K">@"B@9>©9A;"V©>D">D;©?";9YA©?R"J9:T"©G">D;R"JBB;:;">@">D©E"
?;YA;E>T">D;R"V©FF"L?@B;;:"V©>D">D;"?;KJ©9:;?"@G">D;"&JA>©@9"(>JO;"©9"JBB@?:J9B;"V©>D">D©E"

++I`IZIZ"1D;"K℃9℃E>;?"DJE">D;"?℃OD>">@"JLL;JF"JOJ℃9E>">D;"℃KL@E℃>℃@9"@G"J9"-9℃>℃JF"&JA>℃@9"
℃EEA;:"A9:;?"#J?JO?JLD"++I`I!"J9:">D;"JLL;JF"L?@S℃E℃@9E"J?;"B@9>J℃9;:"℃9"#J?JO?JLD"++IbI"
"
++I`I[I!"*A?℃9O">D;"L;?℃@:"VD℃FE>">D;"-9℃>℃JF"&JA>℃@9"℃E"℃9"LFJB;T">D;"(R9@:"+LL@℃9>;;E"EDJFF"
\;;L">D;"E℃>AJ>℃@9"A9:;?"?;S℃;V"J9:T"℃G">D;R"Q;B@K;"JVJ?;"@G"B@9:AB>"@?"Q;DJS℃@A?"@9">D;"
LJ?>"@G">D;"K℃9℃E>;?"VD℃BD"℃9:℃BJ>;E">DJ>"EdD;"℃E"9@>"J:D;?℃9O">@">D;">;?KE"@G">D;"&JA>℃@9T"
>D;R"DJS;">D;"JA>D@?℃>R">@"BJFF">D;"K℃9℃E>;?">@"JBB@A9>"J>"J9R">℃K;"J9:T"℃G">D;"B℃?BAKE>J9B;E"
ED@AF:"E@"?;YA℃?;T">@"℃EEA;"J")℃9JF"&JA>℃@9"A9:;?"#J?JO?JLD"++Ia"@?"QRLJEE">D;")℃9JF"&JA>℃@9"
(>JO;"J9:">@"L?@B;;:"

ED@AF:"E@"?;YA?;T">@"EEA;"J"?;B@KK;9:J>?@9">@">D;"(R9@:"5@:;?J>@?"?9">D;">;?KE"@G"
#J?JO?JLD"++I^I[I!"V?>D@A>"VJ?>?9O"G@?">D;"L;??@:"@G">D;"&JA>?@9">@";<L?;T"?9"VD?BD"BJE;"
L?@B;:A?;E"J9JF@O@AE">@">D@E;"B@9>J?9;:"?9"#J?JO?JLDE"++I^I[IZ"J9:"++I^I[I["V??F"JLLFRI"
"
++IaI[IZ"1D;"L?@S?E?@9E"@G"#J?JO?JLD"++I]"JE">@">D;"B@9:AB>"@G"K;;>?9OE"V?>D">D;"K?9?E>;?"
J9:"@>D;?"?9>;?S?;V;;E"EDJFF"JFE@"JLLFR":A??9O"J9:"J>">D;";<L?J>?@9"@G">D;"L;??@:"@G">D;"

++lb

ZZ"

"

"

Z["

"

?;L@?>">@">D;"(R9@:"5@:;?J>@?"℃9"JBB@?:J9B;"V℃>D">D;"L?@B;:A?;"E;>"@A>"℃9"#J?JO?JLD"
++IcI!I"1D;"(R9@:"5@:;?J>@?"EDJ℉"DJS;"

Z]"

"

Z^"

"

"

PIZIZI["'S;?R"O?@AL"@G"(DJ?C9O"(R9@:E"EDJFF"JLL@C9>"J"&@3@?:C9J>@?"MVD@"KJR"JFE@"Q;"J"#J9;F"
K;KQ;?N"VD@"EDJFF"B@3@?:C9J>;"J9:"J:KC9CE>;?">D;C?"(DJ?;:"(R9@:"#J9;FT"\;;L"AL

"

>D©E"J9:T"©G"9;B;EEJ?RT">@"?;K©9:">D;"O?@AL"VD;9">D;"9AKQ;?"GJFFE"Q;F@V">D;"E>J>;:"
?;YA©?;K;9>I"
"
PI[I!"-9":©EB©LF©9J?R"BJE;E"J?©E©9O"A9:;?"#J?JO?JLD"ZM]NM+NM<S©©N"@G">D;"(>?AB>A?;"M(R9@:EN"©9"
?;EL;B>"@G"J9R"K©9©E>;?"©9"K;KQ;?ED©L"@?"A9:;?">D;"JA>D@?©>R"@G">D;"(R9@:"©9"YA;E>©@9T"©G"
>D;"5@:;?J>@?"@G">DJ>"(R9@:";©>D;?"M©N"Q;F©;S;E">DJ>">D;?;"KJR"Q;"J":©EB©LF©9J?R"©EEA;"
©9S@FS©9O"/?@EE"5©EB@9:AB>"@?"K©EB@9:AB>"@G"J"EAGG©B©;9>FR"E;?©@AE"9J>A?;"JE">@"_AE>©GR"
D©EdD;?">J\©9O"JB>©@9"A9:;?">D©E"#J?JO?JLD"V©>D@A>"G©?E>"©9©>©J>©9O">D;"&JA>©@9"(>JO;"@?"M©©N"
?;E@FS;E"MVD;?;">D;"BJE;"DJE"JF?;J:R"LJEE;:">D?@AOD">D;"&JA>©@9"(>JO;N">@"JB>"@9">D;"
?;B@KK;9:J>©@9"G?@K">D;"(R9@:"+LL@©9>;;E">@"BJFF"©9"J"5J9:J>;:"/?@AL"EdD;"EDJFF"
G@?>DV©>D"©9">D;"9JK;"@G">D;"(R9@:"JLL@©9>">V@"L;?E@9E"G?@K">D;"U@©9>"#J9;F"JE"L?@S©:;:"©9"
#J?JO?JLD"PIZI["J9:"@9;"L;?E@9"G?@K">D;"(R9@:"#J9;F"@?"(DJ?;:"(R9@:"#J9;F"M@?"©9"J9"
;K;?O;9BR"G?@K">D;"(R9@:"#J9;F"@?"(DJ?;:"(R9@:"#J9;F"@G"J9@>D;?"(R9@:"@?"/?@AL"@G"
(DJ?©9O"(R9@:EN"JE"L?@S©:;:"©9"#J?JO?JLD"PIZI!"@?"#J?JO?JLD"PIZIZ">@"B@9E>©>A>;">D;"
5J9:J>;:"/?@AL"G@?">D;"LJ?>©BAFJ?"BJE;I""""1D;"(R9@:"5@:;?J>@?"KJR":;LJ?>"G?@K">D;"E>?©B>"
>;?KE"@G">D;"L?;B;:©9O"E;9>;9B;"©G"EdD;"B@9E©:;?E">DJ>"J9R":;FJR"©9"KJ\©9O"J9"JLL@©9>K;9>"
G?@K">D;"(R9@:"#J9;F"@?"(DJ?;:"(R9@:"#J9;F"V@AF:"A9:AFR"?;>J?:">D;"L?@O?;EE"@G">D;"BJE;"
J9:"©9"EABD"J"E©>AJ>©@9"EdD;"KJR"JLL@©9>">D;">D©?:"K;KQ;?"@G">D;"5J9:J>;:"/?@AL"G?@K">D;"
U@©9>"#J9;FI""""+E"E@@9"JE">D;"JLL@©9>K;9>E"DJS;"Q;;9"KJ:;T">D;"(R9@:"5@:;?J>@?"EDJFF"
©9G@?K">D;"K©9©E>;?"@G">D©E"J9:"G@FF@V">D;"L?@B;:A?;"FJ©:":@V9"©9"#J?JO?JLDE"PI`I!d]I"

"

"

Zb"

"

PI `I ["-G">D ; "(R9@ : " 5 @ : ; ?J>@?"DJE"L?@B ; ; : ; : " : ?; B>FR">@"

Zc"

"

[e

[!

[["

"

&I!I^"-9G@?K">D;"/ ;9;?JF"(;B?;>J?RT">D;"5@:;?J>@?"@G">D;"(R9@:T">D;"(R9@:"&F;?\T">D;"#?;EE"
%GGCB;?T">D;"(JG;OAJ?:C9O"%GGCB;?"J9:">D;"(;B?;>J?R"G@?"5C9CE>?C;E"@G">D;"?;B;CL>"@G">D;"
$;G;??JF".@>CB;"QA>"9@>"@G">D;"B@9>;9>E">D;?;@GT"JLJ?>"G?@K">D;"9JK;"@G">D;"KC9CE>;?I"
"
&I!I`"%9"?;B;CL>"@G">D;"KC9CE>;?XE"?;EL@9E;"A9:;?"#J?JO?JLD"&I!IZ"J9:"J9R":@BAK;9>E"VDCBD"
KJR"JBB@KLJ9R"C>T"L?@SC:;">D;"5J9:J>;:"/?@AL"VC>D"B@LC;E">D;?;@GI"
"
&I!Ia"-9"J9R"BJE;"J?CEC9O"JE"J"B@9E;YA;9B;"@G"J".@>CB;"@G"$;G;?;9B;"QJB\T"VD;?;"B@KK;9>E"
J?;"?;B;CS;:"G?@K";C>D;?"@G">D;"LJ?>C;E"JE"J"?;EAF>"@G">D;"C9SC>J>C@9"B@9>JC9;:"C9"#J?JO?JLD"
&I!I[T"L?@SC:;">D;"@>D;?"LJ?>R"VC>D"B@LC;E">D;?;@GI"
"

EdD;"℃E"A9JVJ?;"@G"J9R"B℃?BAKE>J9B;E"VD℃BD"℃9">D;"L?;E;9>"BJE;"K℃OD>"L?;S;9>"D℃KdD;?"G?@K"
E;?S℃9O"@9">D;"+EE;KQFR"&@KK℃EE℃@9I"
"
&I]IZ"1D;"-9S℃>;;"EDJFF"V℃>D℃9"a":JRE"@G"?;B;℃L>"@G"EABD" . @>℃B;"E;?S;"@9">D;"(;B?;>J?R"@G">D;"
+EE;KQFR"&@KK℃EE℃@9"J" . @>℃B;"℃9:℃BJ>℃9O"VD;>D;?"EdD;"℃E"JQF;"J9:"V℃FF℃9O">@"JBB;L>"
JLL@℃9>K;9>"J9:T"℃G"E@T"B@9G℃?K℃9O"B@KLF℃J9B;"V℃>D"#J?JO?JLD"&I[I!I"
"
&I^I!"1D;"(;B?;>J?R"@G">D;"+EE;KQFR"&@KK℃EE℃@9"EDJFF"E;?S;"9@>℃B;"@9">D;"#J?>℃;E"E;>>℃9O"@A>"
>D;"9JK;"J9:"@GG℃B;"@?"B?;::9>℃JFE"@G";JBD"L?@L@E;:"JLL@℃9>;;T":?JV℃9O"J>>;9>℃@9">@"
#J?JO?JLDE"&I[I!"J9:"?;YA℃?℃9O"9@>℃B;"@G"@Q_;B>℃@9">@"J9R"@G">D;"L?@L@E;:"JLL@℃9>;;E"A9:;?"
>DJ>"#J?JO?JLD">@"Q;"E;?S;:"AL@9">D;"(;B?;>J?R"@G">D;"+EE;KQFR"&@KK℃EE℃@9"V℃>D℃9"!]":JRE"
@G">D;"E;?S℃B;"@G">D;" . @>℃B;"O℃S;9"A9:;?">D℃E"#J?JO?JLDI"
"
&I^IZ"+9R"EABD" . @>℃B;"@G"%Q_;B>℃@9"KAE>"E>J>;">D;"O?@A9:E"G@?"EABD"@Q_;B>℃@9I"
"
&I^I["1@";9EA?;">DJ>">D;"&@KK℃EE℃@9"(>JO;"℃E"K@S;:"JF@9O"℃9"J">℃K;FR"KJ99;?T"J9R" . @>℃B;"@G"
%Q_;B>℃@9"?;B;℃S;:"@A>E℃:;">D;"L;?℃@:"JFF@V;:"V℃FF"9@>"9@?KJFFR"Q;"B@9E℃:;?;:"A9F;EE"S;?R"
O@@:"?;JE@9"BJ9"Q;"ED@V9"G@?"℃>E"FJ>;":;F℃S;?RI"
"
&I^I]"1D;"+LL@℃9>;?E"EDJFF"B@9E℃:;?"J9R"@Q_;B>℃@9"L?@L;?FR":;F℃S;?;:"J9:"EDJFF":;B℃:;"
VD;>D;?">@"ALD@F:"@?"?;_;B>">D;"@Q_;B>℃@9I"
"
&I^I^"-G">D;R"?;_;B>">D;"@Q_;B>℃@9">D;"(;B?;>J?R"@G">D;"+EE;KQFR"&@KK℃EE℃@9"EDJFF"E;?S;"
9@>℃B;">D;?;@G"@9">D;"@Q_;B>@?I"
"
&I^I`"-G">D;R"ALD@F:">D;"@Q_;B>℃@9T">D;"(;B?;>J?R"@G">D;"+EE;KQFR"&@KK℃EE℃@9"EDJFF"E;?S;"
9@>℃B;">D;?;@G"AL@9">D;"@Q_;B>@?T">D;"L;?E@9">@"VD@K">D;"@Q_;B>℃@9"VJE">J\;9"J9:">D;"

"

EDJFF"E>J9:":@V9"J9:"Q;":CEBDJ?O;:"J9:"J"9;V"+EE;KQFR"&@KKCEEC@9"EDJFF"Q;"JLL@C9>;:"
A9:;?">DCE"(;B>C@9"&I"
"
&IaI]"-G">D;"&@9S;9;?"@G">D;"+EE;KQFR"&@KKCEEC@9"CE"A9JQF;">@"B@9>C9A;">@"E;?S;T">D;"
?;KJC9C9O"K;KQ;?E"EDJFFT"G@FF@VC9O"B@9EAF>J>C@9"VC>D">D;"+LL@C9>;?ET"JLL@C9>"@9;"@G">D;C?"
9AKQ;?">@"Q;">D;"&@9S;9;?"C9"DCEdD;?"LFJB;I"
"
D I M G
"
*I!"->"EDJFF"Q;">D;"?@F;"@G">D;"5J9:J>;:"/?@AL">@"C9S;E>COJ>;">D;"KJ>>;?E"VDCBD"J?;">D;"
EAQ_;B>"@G">D;"$;G;??JF".@>CB;"VC>D"J"SC;V">@"L?;E;9>C9O">D;"BJE;"C9">D;"9JK;"@G">D;"&@A9BCF"
J>">D;"2;J?C9OI"
"
*IZI!"-9">D;"B@A?E;"@G">D;"-9S;E>COJ>C@9T">D;"5J9:J>;:"/?@AL"EDJFF"9@?KJFFR"C9>;?SC;V">D;"
L;?E@9"@?"L;?E@9E"F@:OC9O">D;"C9C>CJF"B@KLFJC9>"MCG"J9RN"J9:">D;"KC9CE>;?"B@9B;?9;:"J9:"EDJFF"
KJ\;"JFF"@>D;?"C9S;E>COJ>C@9E"VDCBD"C>"B@9EC:;?E"9;B;EEJ?RI"
"
*IZIZ"+9R"L;?E@9"Q;C9O"C9>;?SC;V;:"C9"JBB@?:J9B;"VC>D"#J?JO?JLD"*IZI!"KJRT"CG"EdD;"E@"
VCED;ET"DJS;"J"G?C;9:"L?;E;9>"VC>D"DCKdD;?"J>"EABD"C9>;?SC;VI"
"
*I["-9"B@9:AB>C9O"C>E"-9S;E>COJ>C@9"J9:"L?;LJ?C9O"G@?">D;"2;J?C9OT">D;"5J9:J>;:"/?@AL"EDJFF"
J>"JFF">CK;E"DJS;"C9"KC9:">D;"E>J>;K;9>"E;>"@A>"C9"#J?JO?JLD"+IZI!"?;OJ?:C9O">D;"L?@L;?"
;<L;:C>C@9"@G">D;"*CEBCLFC9J?R"#?@B;EE"MJ9:"E;;"JFE@"#J?JO?JLD"'I]"JE">@">D;"?@F;"@G">D;"
(;B?;>J?R"@G">D;"+EE;KQFR"&@KKCEEC@9"C9">DCE"?;EL;B>NI"
"
*I]"-9"BJE;E"VD;?;"#J?JO?JLD"'IaI!"JLLFC;ET">D;"5J9:J>;:"/?@AL"KJR"C>E;FG"K@9C>@?">D;"
B?CKC9JF"L?@B;;:C9OET"QA>"EDJFF"@>D;?VCE;"G@?">D;"L;?C@:"EL;BCGC;:"C9">DJ>"#J?JO?JLD"EAEL;9:"
C>E"@V9"C9S;E>COJ>C@9"@G"J9R"KJ>>;?"A9:;?">D;"*CEBCLFC9J?R"#?@B;EE"VDCBD"KCOD>"JFE@"Q;"
?;FJ>;:">@">D;"B?CKC9JF"L?@B;;:C9OEI"
"
*I^"-9"BJE;E"B@KC9O"C9>@">D;"*CEBCLFC9J?R"#?@B;EE"G@FF@VC9O"J"?;B@KK;9:J>C@9"G?@K">D;"
-9BJLJBC>R"#?@B;:A?;T">D;"5J9:J>;:"/?@AL"EDJFF"DJS;"?;OJ?:">@">D;"G@FF@VC9O"KJ>>;?E="
"
*I^I!"1D;"5J9:J>;:"/?@AL"KAE>"BJ??R"@A>"C>E"-9S;E>COJ>C@9"GAFFR"J9:"KAE>"9@>"?;FR"AL@9"J9R"
C9G@?KJ>C@9"ECKLFR"Q;BJAE;"C>"VJE"L?;E;9>;:"J9:"B@9EC:;?;:"VC>DC9">D;"-9BJLJBC>R"

[a

LJE>@?J>;"@G">D;"?;K@SJF"@G">D;"KC9CE>;?XE"(AEL;9EC@9"JE"EL;BCGC;:"C9"#J?JO?JLD"PIaI^"J9:"MCCN"
C9E>?AB>"DCKdD;?">@"OCS;"V?C>>;9"9@>CB;"@G">D;"?;K@SJF"@G">D;"KC9CE>;?XE"(AEL;9EC@9">@">D;"
L;?E@9E"EL;BCGC;:"C9"#J?JO?JLD"PIaI`I""
"
'IZI!"69F;EE">D;"BJE;"CE"EAQ_;B>">@"B@KLAFE@?R"J:_@A?9K;9>"A9:;?"#J?JO?JLD"'IaT">D;"
(;B?;>J?R"@G">D;"+EE;KQFR"&@KKCEEC@9"EDJFF"JE"E@@9"JE"L?JB>CBJQF;"JG>;?">D;"JLL@C9>K;9>"@G"
>D;"+EE;KQFR"&@KKCEEC@9="
"
'IZI!I!"L?@SC:;">D;"&@9S;9;?"J9:">D;"@>D;?"K;KQ;?E"@G">D;"+">0.2412-9(/2(K)-1(JQ)-22(K)-(R)-15(")-

"

&@K K©EE©@9">D;": @BAK;9>ET"E>J>;K;9>E"J9:"©9G@?KJ>©@9"?;YA;E>;:T"VD;?;AL@9">D;"
(;B?;>J?R"EDJFF"G@?>DV©>D"L?@S©:;"B@L©;E">D;?;@G"G@?">D;"&@9S;9;?"J9:">D;"@>D;?"K;KQ;?E"@G"
>D;"+EE;KQFR"&@K K©EE©@9I"
"
'I[IZ"+E"E@@9"JE"L@EE©QF;"JG>;?">D;";<L©?J>©@9"@G"EABD"L;?©@:"@G"Zb":JRE"?;G;??;:">@"©9"
#J?JO?JLD"'I[I!T">D;"(;B?;>J?R"@G">D;"+EE;KQFR"&@K K©EE©@9"EDJFF"L?@S©:;";JBD"#J?>R"V©>D"
B@L©;E"@G">D;":@BAK;9>ET"E>J>;K;9>E"J9:"©9G@?KJ>©@9":;FCS;?;:"QR">D;"@>D;?"#J?>R"A9:;?"
#J?JO?JLD"'I[I!I"
"
'I[I["1D;"#J?>©;E"EDJFF"?;EL@9:">@">D;"?;EL;B>©S;"©9S©>J>©@9E"B@9>J©9;:"©9"#J?JO?JLDE"'IZIZI]"
J9:"'IZIZI^"9@"FJ>;?">DJ9"Z!":JRE"L?©@?">@">D;":J>;"E;>"G@?">D;"2;J?©9O"J9:"B@L©;E"@G";JBD"
#J?>RXE"?;EL@9E;"EDJFF">D;?;AL@9"Q;"E;9>"QR">D;"(;B?;>J?R"@G">D;"+EE;KQFR"&@K K©EE©@9">@"
>D;"@>D;?"#J?>RI"
"
'I]"2JS©9O"©9"K©9:">D;"E>J>;K;9>"?;OJ?:©9O"L?@L;?";<L;:©>©@9"E;>"@A>"©9"#J?JO?JLD"+IZI!"QA>"
>J\©9O"JBB@A9>"@G">D;"9;;:"G@?">D;"#J?>©;E">@"KJ\;">D;©?":A;"L?;LJ?J>©@9E"G@?">D;"2;J?©9OT"
>D;"(;B?;>J?R"@G">D;"+EE;KQFR"&@K K©EE©@9"EDJFFT"VD;9"©>"E;;KE"K@E>"JLL?@L?©J>;">@"
D©KdD;?="
"
'I]I!"B@9EAF>"V©>D">D;"&@9S;9;?"J9:">D;"@>D;?"K;KQ;?E"@G">D;"+EE;KQFR"&@K K©EE©@9"JE">@"
J"EA©>JQF;"S;9A;T":J>;"J9:">©K;"G@?">D;"2;J?©9O"J9:T"VD;?;"L@EE©QF;T"V©>D">D;"#J?>©;E"JE">@"J"
EA©>JQF;":J>;"J9:">©K;"G@?">D;"2;J?©9O"J9:T"DJS©9O"E@"B@9EAF>;:T":;B©:;">D;?;AL@9"J9:"
"
'I]!] T (E) -116 (?)-17 (@) -4 (L)@ (9)">(") -2 (V) -2 (Q) -3 ((") -2 (:) -3 (J) -9 ((?) -3 (@ (9))(J) -9 ((?)

[c"
"

>DJ>">D;R"A9:;?E>J9:">D;";S℃:;9>℃JF";GG;B>"@G">D;"JO?;;K;9>"?;JBD;:"QR">D;K"JE"E;>"@A>"℃9"

]e"

"

]Z"

"

'IaIZI^"JFF":?AOE3"J9:":?C9\3?;FJ>;:"@GG;9B;EI"
"
'IaI["-G">D;"BJE;"GJFFE"VC>DC9">DCE"#J?JO?JLD"'IaT">D;"(;B?;>J?R"@G">D;"+EE;KQFR"&@KKCEEC@9"
EDJFFT"JE"E@@9"JE"L?JB>CBJQF;"JG>;?">D;"JLL@C9>K;9>"@G">D;"+EE;KQFR"&@KKCEEC@9T"9@>CGR">D;"
#J?>C;E"@G">D;"B@KLAFE@?R"J:_@A?9K;9>"@G">D;"BJE;I"
"
'IaI]"->"EDJFF"Q;">D;"?;EL@9ECQCFC>R"@G">D;"5J9:J>;:"/?@AL">@"L?@BA?;"J":AFR"B;?>CGC;:"&@A?>"
?;B@?:"@?"K;K@?J9:AK"@G">D;":;BCEC@9"@G">D;"B?CKC9JF"@?"BCSCF"B@A?>"C9"B@99;B>C@9"VC>D"J9R"
EABD"BJE;"J9:">@"F@:0;"C>"VC>D">D;"(;B?;>J?R"@G">D;"+EE;KQFR"&@KKCEEC@9T"

]]"
"

"

'IbI^"+9R"GJCFA?;T"A99;B;EEJ?R":;FJR"@?"@QE>?AB>C@9"@9">D;"LJ?>"@G">D;"KC9CE>;?"C9"B@KLFRC9O"
VC>D">D;"?;YAC?;K;9>E"@G"#J?JO?JLD"'IaI`I"
"

'IbI`"1D;">;?KE"@G"J9R"&JA>C@9"CKL@E;:"@9">D;"KC9CE>;?"J>">D;"&JA>C@9"(>JO;"J9:">D;"
KC9CE>;?gE"?;JB>C@9">D;?;>@T"LJ?>CBAFJ?FR"C9">;?KE"@G"DCEdD;?"L;?G@?KJ9B;"J9:">D;"F;S;F"@G"
DCEdD;?"?;EL@9E;">@">D;"&JA>C@9":A?C9O">D;"L;?C@:"VDCF;">D;"&JA>C@9"VJE"C9"LFJB;I"
"

'IcI!"1D;"+EE;KQFR"&@KKCEEC@9"DJE"9@"L@V;?">@"JBB;L>">D;"S@FA9>J?R"?;ECO9J>C@9"@G"J"
KC9CE>;?I"+"KC9CE>;?"KJR"D@V;S;?"J>"J9R">CK;":A?C9O">D;"*CEBCLFC9J?R"#?@B;EE"J9:"@G"DCEdD;?"
@V9"G?;;"VCFF"KJ\;"J"V?C>>;9"E>J>;K;9>">@">D;"+EE;KQFR"&@KKCEEC@9"J:KC>>C9O">D;">?A>D"@G"
E@K;"@?"JFF"@G">D;"GJB>E"@?"BC?BAKE>J9B;E"JFF;0;:T"@9">D;"QJECE"@G"VDCBD">D;"+EE;KQFR"
&@KKCEEC@9"V@AF:"B@9EC:;?"C>"B@??;B>">@"KJ\;"J":;BCEC@9">@":;F;>;"A9:;?"

]^"

"

YA;E>C@9">D;"KC9CE>;?"@?"J9R"@G">D;"VC>9;EE;E"9@?"L?;E;9>">D;"KC9CE>;?XE"?;EL@9E;"9@?">J\;"
J9R"JB>CS;"LJ?>"C9">D;"2;J?C9OI"
"
'I!eI!IZ"-G">D;"KC9CE>;?";F;B>E">@"C9SC>;">D;"JBB@KLJ9RC9O"L;?E@9">@"L?;E;9>">D;"KC9CE>;?XE"
?;EL@9E;T">D;"KC9CE>;?"VCFF"9@>"Q;"L;?KC>>;:"C9">D;"C9>;?;E>E"@G">D;"O@@:"@?:;?C9O"@G">D;"
L?@B;:A?;E"J>">D;"2;J?C9O">@"YA;E>C@9">D;"VC>9;EE;E"9@?"L?;E;9>">D;"?;EL@9E;"
DCKE;FGdD;?E;FGI"
"
'I!eI!I["1D;"+EE;KQFR"&@KKCEEC@9"KJR"J>"C>E":CEB?;>C@9":;LJ?>"G?@K">D;"E>?CB>"JLLFCBJ>C@9"@G"
#J?JO?JLDE"'I!eI!I!"J9:"'I!eI!IZ"QA>"@9FR"E@"F@9O"JE">D;"JBB@KLJ9RC9O"L;?E@9":@;E"9@>"JB>"

]`"
"

+9R"@>D;?"L;?E@9"QR">D;":℃?;B>℃@9"@G">D;"+EE;KQFR"&@KK℃EE℃@9"J9:"V℃>D"L?℃@?"
9@>℃G℃BJ>℃@9">@">D;"#J?>℃;EI"
"
'I!ZIZ"1D;"(;B?;>J?R"@G">D;"+EE;KQFR"&@KK℃EE℃@9"EDJFF"MA9F;EE";<BFA:;:"G@?"?;JE@9E"
EL;B℃G℃;:"℃9"#J?JO?JLD"&I[I!N"J>>;9:">D;"2;J?℃9O"G@?">D;"LA?L@E;"@G"O℃S℃9O"EABD"L?@B;:A?JF"
J:S℃B;">@">D;"+EE;KQFR"&@KK℃EE℃@9"JE"KJR"Q;"JLL?@L?℃J>;"J9:"@G";9EA?℃9O"B@KLF℃J9B;"V℃>D"
#J?JO?JLD"'I!ZI]I"(dD;"EDJFF"9@>"Q;"L?;E;9>"VD;9">D;"+EE;KQFR"&@KK℃EE℃@9":;F℃Q;?J>;E"J9:"
:;B℃:;E"@9">D;"BJE;I"
"
'I!ZI["-9">D;";S;9>">DJ>">D;"(;B?;>J?R"@G">D;"+EE;KQFR"&@KK℃EE℃@9"BJ99@>"G@?"J9R"?;JE@9"Q;"
L?;E;9>"J>">D;"2;J?℃9OT">D;"+EE;KQFR"&@KK℃EE℃@9"EDJFF"℃>E;FG"JLL@℃9>"EABD"L;?E@9"JE"℃>"
B@9E℃:;?E"JLL?@L?℃J>;">@":;LA>℃E;"G@?"D℃KdD;?"G@?">DJ>"LA?L@E;T"JEB;?>J℃9℃9O"Q;G@?;DJ9:"
>DJ>"EABD"L;?E@9"℃E"9@>";<BFA:;:"G@?"?;JE@9E"EL;B℃G℃;:"℃9"#J?JO?JLD"&I[I!I""(ABD"L;?E@9"EDJFF"
BJ??R"@A>">D;":A>℃;E"E;>"@A>"℃9"#J?JO?JLD"'I!ZIZ"QA>"EDJFF"9@>"Q;"L?;E;9>"VD;9">D;"+EE;KQFR"
&@KK℃EE℃@9":;F℃Q;?J>;E"J9:":;B℃:;E"@9">D;"BJE;I"
"
'I!ZI]"1D;"(;B?;>J?R"@G">D;"+EE;KQFR"&@KK℃EE℃@9"@?"D℃EdD;?":;LA>R"EDJFF"L?;LJ?;"J"
EAKKJ?R"K℃9A>;"@G">D;"L?@B;;:℃9OE"J>">D;"2;J?℃9O"M>D;"(;B?;>J?RXE"K℃9A>;NI"0D;?;"
L@EE℃QF;T"J"S;?QJ>℃K"?;B@?:"@G">D;"L?@B;;:℃9OE"EDJFF"JFE@"Q;"KJ:;"QR";F;B>?@9℃B"?;B@?:℃9O"@?"
QR"EABD"@>D;?"K;J9E"JE"EDJFF"Q;":℃?;B>;:"QR">D;"&@9S;9;?"@G">D;"+EE;KQFR"&@KK℃EE℃@9I"1D;"
$;B@?:"@G">D;"2;J?℃9O"EDJFF"B@9E℃E>"@G">D;"(;B?;>J?RXE"K℃9A>;">@O;>D;?"V℃>D"J9R"EABD"
S;?QJ>℃K"?;B@?:T"VD℃BD"EDJFF"Q;">?J9EB?℃Q;:"℃9">D;";S;9>"@G"J9"JLL;JFI"
"
'I![I!"1D;"B@9:AB>"@G">D;"2;J?℃9O"℃E"℃9">D;"DJ9:E"@G">D;"+EE;KQFR"&@KK℃EE℃@9"J9:T"EAQ_;B>"
>@">D;"+EE;KQFR"&@KK℃EE℃@9XE"@S;??℃:℃9O":℃EB?;>℃@9T">D;"@?:;?"@G"L?@B;:A?;"EDJFF"Q;"JE"
G@FF@VE="
"
'I![IZ"1D;"5J9:J>;:"/?@AL">D?@AOD"℃>E"EL@\;EL;?E@9"EDJFF"Q;"O℃S;9">D;"@LL@?>A9℃>R">@"
KJ\;"J9"@L;9℃9O"EAQK℃EE℃@9"J9:">D;9">@"L?;E;9>"℃>E";S℃:;9B;"J9:"YA;E>℃@9"℃>E"V℃>9;EE;EI"
#;?E@9E"BJFF;:">@"O℃S;";S℃:;9B;"QR">D;"5J9:J>;:"/?@AL"J?;"@L;9">@"YA;E>℃@9℃9O"QR">D;"
K℃9℃E>;?"@?"D℃EdD;?"EL@\;EL;?E@9"JE">D;"BJE;"KJR"Q;I"
"
'I![I["-G">D;"K℃9℃E>;?"℃E"L?;E;9>℃9O"D℃EdD;?"@V9"BJE;T"EdD;"EDJFF">D;9"Q;"O℃S;9">D;"
@LL@?>A9℃>R">@"L?;E;9>"D℃EdD;?";S℃:;9B;"℃9"L;?E@9T"G@FF@V℃9O"VD℃BD"EdD;"℃E">D;9"@L;9">@"
YA;E>℃@9℃9O"QR">D;"EL@\;EL;?E@9"G@?">D;"5J9:J>;:"/?@ALI"
"
'I![I]"-G"J"EL@\;EL;?E@9"℃E"JLL;J?℃9O"G@?">D;"K℃9℃E>;?T">DJ>"EL@\;EL;?E@9"EDJFF"Q;"O℃S;9">D;"
@LL@?>A9℃>R"@G"YA;E>℃@9℃9O">D;"K℃9℃E>;?T"VD@"EDJFF">D;9"Q;"@L;9">@"

]a"
"

; S℃ : ; 9B ; ">DJ>"V℃>9 ; EE"EDJFF">D ; 9"Q ; "@L ; 9">@"YA ; E>℃@9℃9O"QR">D ; "EL@\ ; EL ; ?E@9"℃@?">D ; "
5 J9 : J> ; : " / ?@ALI"
"
'I!]I! "1D ; "K ; KQ ; ?E"@℃">D ; "+EE ; KQFR"&@K K℃EE℃@9"EDJFF"Q ; " ; 9>℃>F ; : ">@"JE\"YA ; E>℃@9E"J9 : "JFE@"
>@"℃9> ; ?_ ; B>" : A?℃9O">D ; " ; <JK℃9J>℃@9"@℃"V℃>9 ; EE ; E"℃℃">D ; R"B@9E℃ : ; ?">D ; "YA ; E>℃@9℃9O">@"Q ; "
@LL? ; EE℃S ; "@?"℃K KJ> ; ?℃JF">@">D ; "KJ>> ; ?"℃9"DJ9 : "@?"℃℃"℃@?"J9R"@>D ; ?"? ; JE@9">D ; R"B@9E℃ : ; ?"℃>"
JLL?@L?℃J> ; "E@">@" : @I"
"
'I!]IZ"# ; ?E@9E"VD@"DJS ; "JF? ; J : R"Q ; ; 9"YA ; E>℃@9 ; : "KJR"Q ; "JE\ ; : ">@"J9EV ; ?"℃A?>D ; ?"
YA ; E>℃@9E"FJ> ; ?"℃9">D ; "2 ; J?℃9O"℃℃"℃>"JLL ; J?E">@">D ; "+EE ; KQFR"&@K K℃EE℃@9">DJ">D℃E"V@AF : "Q ; "
D ; FL℃AF"J9 : "JLL?@L?℃J> ; "℃9">D ; "B℃?BAKE>J9B ; EI"
"
'I!]I ["+"? ; L? ; E ; 9>J>℃S ; "@℃">D ; "&DA?BDXE"F ; OJF"J : S℃E ; ?E"EDJFF"9@?KJFFR"Q ; "L? ; E ; 9>"J>">D ; "
2 ; J?℃9O"MA9F ; EE"D℃EdD ; ?"J>> ; 9 : J9B ; "DJE"Q ; ; 9" ; <L? ; EEFR

]b"
"

"

'I!a" . @"L ; ?E@9"JLL ; J?C9O"C9"J9R"BJLJBC>R"Q ; G@? ; ">D ; "+EE ; KQFR"&@K KCEEC@9"J>">D ; "2 ; J?C9O"
MJE" : CE>C9B>"G?@K">D@E ; "E ; ?SC9O">D ; "+EE ; KQFR"&@K KCEEC@9"C9"B@KLFCJ9B ; "VC>D"#J?JO?JLD"
'I!ZI]N"EDJFF"KJ\ ; "J9R"? ; B@? : "@G"J9R"LJ?>"@G">D ; "L?@B ; ; : C9OE"J>">D ; "2 ; J?C9O"QR"K ; J9E"@G"J9R"
>JL ; "? ; B@? : C9O"ERE> ; K"@?"@>D ; ?"K ; BDJ9CBJF"@?" ; F ; B>?@9CB"? ; B@? : C9O" : ; SCB ; "@?"ERE> ; KI"
"

'I!b" 0 D ; 9">D ; "L?@B ; EE"@G"L? ; E ; 9>C9O"J9 : " ; <JKC9C9O">D ; " ; SC : ; 9B ; "J>">D ; "2 ; J?C9O"DJE"Q ; ; 9"
B@9BFA : ; : T">D ; "EL@\ ; EL ; ?E@9"G@?">D ; " 5 J9 : J> ; : " / ?@AL"J9 : ">D ; "KC9CE> ; ?"@?">D ; "
JBB@KLJ9RC9O"L ; ?E@9"JE"JLL?@L?CJ> ; "MC9">DJ>"@? : ; ?N"EDJFF"Q ; "OCS ; 9">D ; "@LL@?>A9C>R">@"
J : : ? ; EE">D ; "+EE ; KQFR"&@K KCEEC@9T"G@FF@VC9O"VDCBD">D ; "&@9S ; 9 ; ?"@G">D ; "+EE ; KQFR"
&@K KCEEC@9"EDJFF"J99@A9B ; ">@">D ; "#J?>C ; E">DJ>">D ; "K ; KQ ; ?E"@G">D ; "+EE ; KQFR"&@K KCEEC@9"
V@AF : "J>">DJ>"L@C9>"? ; >C? ; ">@"B@9EC : ; ?">D ; C?" : ; BCEC@9"VDCBD"V@AF : "9@>"Q ; "J99@A9B ; : ">DJ>" : JR"
QA>"V@AF : "Q ; "9@>CGC ; : ">@">D ; "#J?>C ; E"C9"JBB@? : J9B ; "VC>D"#J?JO?JLD")I^I!I"1D ; "2 ; J?C9O"CE">DAE"
B@9BFA : ; : I"
"

F A C

"

)I!I!")@FF@VC9O">D ; "B@9BFAEC@9"@G">D ; "2 ; J?C9OT">D ; "+EE ; KQFR"&@K KCEEC@9"EDJFFT"JFF"K ; ; >C9O"
>@O ; >D ; ?"QA>"C9">D ; "JQE ; 9B ; "@G">D ; "#J?>C ; ET"B@9EC : ; ?">D ; " ; SC : ; 9B ; "D#CTJTC?(")7(Q)(T)cĥ0 . 0 03(; ?)17?E / 0 .

]c"

"

)I`I!"+>">D;"EJK;">ℂK;"JE"EdD;"E;?S;E"@9">D;"Kℂ9ℂE>;?"J9:">D;"5J9:J>;:"/?@AL">D;"

^!"

"

^Z"

"

^["

"

/ I [IZ"1D ; "+LL ; JFE"&@ K KCEEC@9"G@?">D ; "D ; J?C9O"@G" ; JBD"EABD"JLL ; JF"EDJFF"B@9ECE>"@G">D ; "
G@FF@VC9O"GCS ; "L ; ?E@9E="
"
/ I [IZI ! "+"&@9S ; 9 ; ?"VD@"EDJFF"Q ; "J"K ; KQ ; ?"@G">D ; "69C> ; : "$; G@?K ; : "&DA?BD"MQA>"9@>"
9 ; B ; EEJ?CFR"J"K ; KQ ; ?"@G">D ; " / ; 9 ; ?JF"+EE ; KQFRN"VC>D"F ; OJF"J9 : d@?">?CQA9JF" ; <L ; ?C ; 9B ; ">@"Q ; "
E ; F ; B> ; : "QR">D ; "@GGCB ; ?E"@G">D ; " / ; 9 ; ?JF"+EE ; KQFR"J9 : "
"
/ I [IZIZ"%9 ; "@G">D ; " 5 @ : ; ?J>@?E"@G">D ; " / ; 9 ; ?JF"+EE ; KQFR"@?"CG"G@?"J9R"? ; JE@9"9 ; C>D ; ?"ED@AF : "
Q ; "JQF ; ">@"E ; ?S ; T"J"G@?K ; ?" 5 @ : ; ?J>@?"@G">D ; " / ; 9

/ I^I ["1@" ; 9EA? ; ">DJ>">D ; "JLL ; JFE"L?@B ; EE"CE" K@S ; : "JF@9O"C9"J">C K ; FR" KJ99 ; ?T"J9R" . @>CB ; "@G" %Q_ ; B>C@9"? ; B ; CS ; : "@A>EC : ; ">D ; "L ; ?C@ : "JFF@V ; : "VCFF"9@>"9@?KJFFR"Q ; "B@9EC : ; ? ; : "A9F ; EE"S ; ?R" O@@ : "? ; JE@9"BJ9"Q ; "ED@V9"G@?"C>E"FJ> ; " : ; FCS ; ?RI"
"
/ I^I] "1D ; "%GGCB ; ?E"@G">D ; " / ; 9 ; ?JF"+EE ; KQFR"EDJFF"B@9EC : ; ?" ; S ; ?R"@Q_ ; B>C@9"L?@L ; ?FR"9@>CGC ; : " J9 : "EDJFF" : ; BC : ; "VD ; >D ; ?">@"ALD@F : "@?">@"? ; _ ; B>">D ; "@Q_ ; B>C@9I"
"
/ I^I^"-G">D ; R"? ; _ ; B>">D ; "@Q_ ; B>C@9T">D ; " / ; 9 ; ?JF"(; B? ; >J?R"EDJFF"E ; ?S ; "9@>CB ; ">D ; ? ; @G"@9">D ; " @Q_ ; B>@?I"
"
/ I^I ` "-G">D ; R"ALD@F : ">D ; "@Q_ ; B>C@9T">D ; " / ; 9 ; ?JF"(; B? ; >J?R"EDJFF"E ; ?S ; "9@>CB ; ">D ; ? ; @G"@9">D ; " @Q_ ; B>@?T">D ; "L ; ?E@9">@"VD@K">D ; "@Q_ ; B>C@9"VJE">J\ ; 9"J9 : ">D ; "@>D ; ?"#J?>R"@9"VD@K">D ; " . @>CB ; "EL ; BCGC ; : "C9"#J?JO?JLD" / I^I ! "VJE"E ; ?S ; : I"
"
/ I^Ia"-9">D ; " ; S ; 9>"@G"J9R"@Q_ ; B>C@9"Q ; C9O"ALD ; F : T">D ; "L

"

/ Ibl ["+9R"V?©>>;9"VJ?9©9O"©EEA;:T"©9BFA:©9O"J"B@LR"@G"J9R":©?;B>©@9"©EEA;:">@">D;"(R9@:"
5@:;?J>@?d/ ;9;?JF"+EE;KQFR"$;L?;E;9>J>©S;I"
"

/ Ibl]"+9R"OA©:J9B;"JLL;9:;:">@">D;":;B©E©@9"©9"JBB@?:J9B;"V©>D"#J?JO?JLD")IZI[I"
"

/ Ibl^"+9R"&JA>©@9E"M@>D;?">DJ9">D@E;"EABB;EEGAFFR"JLL;JF;:"J0J©9E>NI"
"

/ Ibl`"1D;". @>©B;"@G"+LL;JFT"B@9>J©9©9O">D;"O?@A9:E"G@?">D;"JLL;JFI"
"

/ IbIa"+9R"B@A9>;?3E>J>;K;9>"?;B;©S;:"A9:;?"#J?JO?JLD"/ IZIZ"@?"#J?JO?JLD"/ IZI[I"
"

/ IbIb"1D;"Q@:R"@G"LJL;?E"FJ©:"Q;G@?;">D;"+EE;KQFR"&@K K©EE©@9"©9"D;J?©9O">D;"BJE;I"
"

/ IbIc"1D;"$;B@?:"@G">D;"2;J?©9OI"M(;;"#J?JO?JLD"'I!ZI]N"
"

/ Ic"1D;"+LL;JFE"&@K K©EE©@9"VD;9"B@9E>©>A>;:"EDJFF"B@9E©:;?">D;"G@FF@V©9O"KJ>>;?E="
"

/ IcI!"0D;>D;?">D;?;"©E"@?"KJR"Q;"9;V"©9G@?KJ>©@9"VD©BD"DJE"B@K;">@"F©OD>"J9:"VD©BD"B@AF:"
9@>"?;JE@9JQFR"DJS;"Q;;9"JSJ©FJQF;">@">D;"+EE;KQFR"&@K K©EE©@9"Q;G@?;"©>E":;B©E©@9"VJE"
>J\;9"A9:;?"#J?JO?JLD")IZI"
"

/ IcIZ"0D;>D;?"J9R"EABD"9;V"©9G@?KJ>©@9"V@AF:"©9"©>E"@L©9©@9"DJS;"Q;;9"KJ>;?©JF"©9">DJ>T"
DJ:"©>"Q;;9">;E>;:"J9:"L?@S;:">@">D;"EJ>©EGJB>©@9"@G">D;"+EE;KQFR"&@K K©EE©@9T"©>"K©OD>"DJS;"
BJAE;:"©>">@"?;JBD"J":

"

/ I ! el] "1D ; " / ; 9 ; ?JF" (; B? ; >J?R"EDJFF"MA9F ; EE" ; <BFA : ; : "G@?">D ; "? ; JE@9E"EL ; BCGC ; : "C9"#J?JO?JLD"
&I [I ! N"J>> ; 9 : ">D ; "2 ; J?C9O"G@?">D ; "LA?L@E ; "@G"OCSC9O"EABD"L?@B ; : A?JF"J : SCB ; ">@">D ; "+LL ; JFE"
&@K KCEEC@9"JE"KJR"Q ; "JLL?@L?CJ> ; "J9 : "@G"\ ; ; LC9O"J"G@?KJF"? ; B@? : "@G">D ; "2 ; J?C9OI"(dD ; "EDJFF"
9@>"Q ; "L? ; E ; 9>"VD ; 9">D ; "+LL ; JFE"&@K KCEEC@9" : ; FCQ ; ?J> ; E"J9 : " : ; BC : ; E"@9">D ; "BJE ; I"
"
/ I ! el ^"-G">D ; " / ; 9 ; ?JF"(; B? ; >J?R"BJ99@>"G@?"J9R"? ; JE@9"Q ; "L? ; E ; 9>"J>">D ; "2 ; J?C9OT">D ; "+LL ; JFE"
&@K KCEEC@9"EDJFF"C>E ; FG"JLL@C9>"EABD"L ; ?E@9"JE"C>"B@9EC : ; ?E"JLL?@L?CJ> ; ">@" : ; LA>CE ; "G@?"

^C"

"

2IZI!"(;?S©B;"@G"J9R":@BAK;9>"?;YA©?;:">@"Q;"E;?S;:"@9"J9"©9:©S©:AJF"EDJFF"Q;":;;K;:">@"
DJS;"Q;;9"L?@L;?FR";GG;B>;:"©9"J9R"@G">D;"G@FF@V©9O"VJRE="
"
2IZI!I!"PR":;F©S;?©9O">D;":@BAK;9>"L;?E@9JFFR">@">D;"©9:©S©:AJF">@"Q;"E;?S;:I"
"
2IZI!IZ"PR":;F©S;?©9O">D;":@BAK;9>"@?"E;9:©9O"©>"QR"G©?E>"BFJEE"L?;3LJ©:"L@E>"@?"QR"$;B@?:;:"
*;F©S;?R"L@E>"J::?;EE;:">@">D;"FJE>"\9@V9"J::?;EE"@G">D;"©9:©S©:AJF">@"Q;"E;?S;:"©9"J"E;JF;:"
;9S;F@L;"J::?;EE;:">@">DJ>"©9:©S©:AJFI"
"
2IZI!I["-9"EABD"@>D;?"KJ99;?"JE">D;"+EE;KQFR"&@KK©EE©@9"@?">D;"+LL;JFE"&@KK©EE©@9"M©G"
E;?S©B;"?;FJ>;E">@">D;"+LL;JFE"#?@B;:A?;N"@?">D;"&@9S;9;?"@?"*;LA>R"&@9S;9;?"@G">D;"
&@KK©EE©@9"#J9;F"M©G"E;?S©B;"?;FJ>;E">@"J"L;?©@:"L?©@?">@">D;"JLL@©9>K;9>"@G">D;"+EE;KQFR"
&@KK©EE©@9N"KJR":©?;B>"DJS©9O"?;OJ?:">@">D;"B©?BAKE>J9B;EI"
"
2IZIZ"(;?S©B;"@G"J9R":@BAK;9>"?;YA©?;:">@"Q;"E;?S;:"@9"J9R"5J9:J>;:"/?@AL"EDJFF"Q;"
:;;K;:">@"DJS;"Q;;9"L?@L;?FR";GG;B>;:"©9"J9R"@G">D;"G@FF@V©9O"VJRE="
"
2IZIZI!"PR":;F©S;?©9O">D;":@BAK;9>"L;?E@9JFFR">@">DJ>"K;KQ;?"@G">D;"5J9:J>;:"/?@AL"VD@"
DJE"Q;;9"9@K©9J>;:"©9">D;"$;G;??JF".@>©B;">@"JBB;L>"E;?S©B;"@?"©9">D;"JQE;9B;"@G"EABD"
9@K©9J>©@9">@">D;"L;?E@9"VD@"E©O9;:">D;"$;G;??JF".@>©B;T"L?@S©:;:">DJ>"©9";©>D;?"BJE;"EABD"
L;?E@9"©E"E>©FF"J"K;KQ;?"@G">D;"5J9:J>;:"/?@AL"VD;9"EABD"E;?S©B;"©E"?;YA©?;:">@"Q;"
;GG;B>;:I"
"
2IZIZIZ"PR":;F©S;?©9O">D;":@BAK;9>"@?"E;9:©9O"©>"QR"G©?E>"BFJEE"L?;3LJ©:"L@E>"@?"QR"$;B@?:;:"
*;F©S;?R"L@E>"J::?;EE;:">@">D;"L;?E@9"?;G;??;:">@"©9"#J?JO?JLD"2IZIZI!"J>">D;"J::?;EE"
EL;B©G©;:"©9"EABD"9@K©9J>©@9"@?T"©9">D;"JQE;9B;"@G"EABD"9@K©9J>©@9T"J>">D;"J::?;EE"O©S;9"©9"
>D;"$;G;??JF".@>©B;I"
"
2IZIZI["-9"EABD"@>D;?"KJ99;?"JE">D;"+EE;KQFR"&@KK©EE©@9"@?">D;"+LL;JFE"&@KK©EE©@9"M©G"
E;?S©B;"?;FJ>;E">@">D;"+LL;JFE"#?@B;:A?;N"KJR":©?;B>"DJS©9O"?;OJ?:">@">D;"B©?BAKE>J9B;EI"
"
2IZI["(;?S©B;"@G"J9R":@BAK;9>"?;YA©?;:">@"Q;"E;?S;:"@9">D;"(;B?;>J?R"@G">D;"+EE;KQFR"
&@KK©EE©@9"@?"@9">D;"/;9;?JF"(;B?;>J?R"EDJFF"Q;":;;K;:">@"DJS;"Q;;9"L?@L;?FR"E;?S;:"©G"
:;F©S;?;:"@?"E;9>"QR"G©?E>"BFJEE"L?;3LJ©:"L@E>"@?"QR"$;B@?:;:"*;F©S;?R"L@E>"J::?;EE;:">@">D;"

"

2I["*;F;>C@9"JE"J"?;EAF>"@G">D;"*CEBCLFC9J?R"#?@B;EE"EDJFF"DJS;">D;";GG;B>"@G">;?KC9J>C9O"J9R"
B@9>?JB>T"V?C>>;9"@?"@?JFT"Q;>V;;9">D;"KC9CE>;?"J9:">D;"69C>;:"$;G@?K;:"&DA?BD"@?"J9R"
B@9E>C>A;9>"LJ?>">D;?;@G"C9"?;FJ>C@9">@"DCEdD;?"KC9CE>?RI"
"

2I]I!"-9"BJE;E"VDCBD"DJS;"QRLJEE;:"@?"DJS;"L?@B;;:;:"Q;R@9:">D;"&JA>C@9"(>J0;T"VC>DC9"
@9;"K@9>D"@G">D;"B@9BFAEC@9"@G";JBD"BJE;">D;"5J9:J>;:"/?@AL"EDJFFT"LA?EAJ9>">@"C>E"
?;L@?>C90"@QFCOJ>C@9"9@>;:"J>"#J?JO?JLDE"PIbIZI!T")I`I["@?"/I!aT"VDCBD;S;?"CE"JLLFCBJQF;T"
F@:0;"J"V?C>>;9"?;L@?>"@G">D;"BJE;"VC>D">D;"(;B?;>J?R"@G">D;"+EE;KQFR"&@KKCEEC@9T"VD@"
EDJFFT"C9"@?:;?">@"L?;E;?S;"B@9GC

"

J G A

"

UI!"1D;" / ;9;?JF"(;B?;>J?R"EDJFF"?;L@?>">@">D;" / ;9;?JF"+EE;KQFR"JFF":;BCEC@9E"?;JBD;:"QR">D;"
+EE;KQFR"&@KKCEEC@9"J9:">D;"+LL;JFE"&@KKCEEC@9"M@>D;?">DJ9"&JA>C@9E"CKL@E;:"QR">D;"
(R9@:"+LL@C9>;;E"J9:":;BCEC@9E"KJ:;"QR">D;"(L;BCJF"+LL;JFE"P@:R"A9:;?"#J?JO?JLD"'I^I["
JOJC9E>">D;"CKL@EC>C@9E"@G"&JA>C@9E":A?C9O">D;"&JA>C@9"(>JO;N"C9">D;"G@FF@VC9O"KJ99;?="
"

UI!I!"-G"J":;BCEC@9"@G">D;"+EE;KQFR"&@KKCEEC@9"CE"EAQ_;B>">@"JLL;JFT">D;"$;L@?>"EDJFF"ECKLFR"
E>J>;">DJ>"J":;BCEC@9"DJE"Q;;9"?;JBD;:"C9"J"BJE;"VDCBD"CE"EAQ_;B>">@"JLL;JF"J9:"EDJFF"9@>"
9JK;">D;"KC9CE>;?I"
"

UI!IZ"-G"J":;BCEC@9"@G">D;"+EE;KQFR"&@KKCEEC@9"CE"9@>"EAQ_;B>">@"JLL;JF"J9:"CE">@":;F;>;"
A9:;?"#J?JO?JLD")IZI!T">D;"$;L@?>"EDJFF"E@"E>J>;"J9:"9JK;">D;"KC9CE>;?I"
"

UI!I["-G"J":;BCEC@9"@G">D;"+EE;KQFR"&@KKCEEC@9"CE"9@>"EAQ_;B>">@"JLL;JF"J9:"CE">@"JFF@V">D;"
9JK;"@G">D;"KC9CE>;?">@"?;KJC9"@9">D;"$@FF"@G"5C9CE>;?E"A9:;?"#J?JO?JLD")IZI!"VC>D"@?"
VC>D@A>">D;"CEEA;"@G"J"V?C>>;9"VJ?9C9O"A9:;?"#J?JO?JLD")IZIZT">D;"$;L@?>"EDJFF"E@"E>J>;"
VC>D@A>"9JKC9O">D;"KC9CE>;?I"
"

UI!I]"-9"J9R"BJE;"VDCBD"O@;E"Q;G@?;">D;"+LL;JFE"&@KKCEEC@9T"CG">D;":;BCEC@9"CE">@":;F;>;T">D;"
$;L@?>"EDJFF"JBB@?:"VC>D"#J?JO?JLD"UI!IZ"J9:"CG">D;":;BCEC@9"CE">@"JFF@V">D;"9JK;"@G">D;"
KC9CE>;?">@"?;KJC9"@9">D;"$@FF"@G"5C9CE>;?E"VC>D"@?"VC>D@A>">D;"CEEA;"@G"J"V?C>>;9"VJ?9C9OT"
>D;"$;L@?>"EDJFF"JBB@?:"VC>D"#J?JO?JLD"UI!I[I"
"

UI!I^"/AC:J9B;"JLL;9:;:">@"J9R":;BCEC@9"@G">D;"+EE;KQFR"&@KKCEEC@9"@?">D;"+LL;JFE"

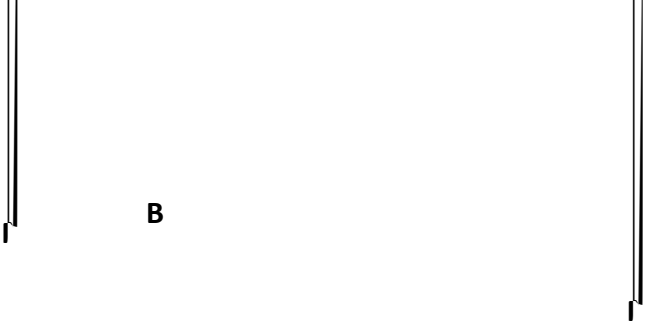
"

+EE;KQFR"&@KKCEEC@9"J9:T"C9">D;";S;9>"@G"J9"JLL;JFT"VC>D">D;"/;9;?JF"(;B?;>J?R":A?C9O">D;"B@A?E;"@G">D;"L?@B;;:C9OEI"1D;"B@KLF;>;"QA9:F;"@G"JFF">D;E;"LJL;?E"EDJFF"Q;"\;L>"C9"J"F@B\;:"BJQC9;>"J>"&DA?BD"2@AE;I"

"

`]"

"



A **B**

"

E

"

1D;"(R9@:"@G"lllllllT"K;;>C9O"C9"LF;9J?R"E;EEC@9"@9">D;"l":JR"@G"llll"ZeIIT"
?;E@FS;E"JE"G@FF@VE="

"

!I"1@"_@C9"VC>D"MD;?;"EL;BCGR">D;"@>D;?"(R9@:E"C9S@FS;:N"C9"B@9E>C>A>C9O"J"(DJ?;:"(R9@:"#J9;F"
C9"JBB@?:J9B;"VC>D"#J?JO?JLD"PIZIZ"@G">D;"5C9CE>;?CJF"*CEBCLFC9J?R"#?@B;EET"VDCBD"EJC:"#J9;F"

"