







!"6\$!T' @0\*/!#+)!4. \*A#, (!5. 9#+\*F#, \*5+&!#. (!(+/5' .#9())!5!4. 5A\*) (!, - (\*!A50' +, ((.&!8-5&(!)' , \*(&  
. (H' \*. (!)\*. (/,!/5+, #/, !8\*, -!#+)!&' 4 (.A\*&\*5+!56!/-\*0). (+!8\*, -!, .#\*+\*+9!\*+!, - (!\*) (+, \*6\*/#, \*5+!#+)!  
. (45. , \*+9!56!/-\*0)!#@' &(!#+)!+(90(/, d  
!

!"#\$ LU/(4, !#&!4. 5A\*) ()!\*+!&' @)\*A\*&\*5+!)"\$!#+)!\*+!J(/, \*5+!; ; ; DD4MC!#!3#+)#, ()!. (45. , (.!&-#00!3#0(!  
#!. (45. , !, 5!#+!#9(+/7!&4 (/ \*6\*)!\*+!J(/, \*5+!; ; ; DC4!8- (+ (A(.!, - (!3#+)#, ()!. (45. , (.!#+!- \*&!5. !  
- (.!4. 56(&&\*5+#0!/#4#/\*, 7!5. !8\*, - \*+!, - (!&/54 (!56!- \*&!5. !- (.!(340573 (+, !-#&!0+580())9 (!56!5. !  
5@& (.A(&!#!/-\*0)!8-53!, - (!3#+)#, ()!. (45. , (.!0+58&!5. !. (#&5+#@07!&' &4(/, &!-#&!@((+!, - (!  
A\*/, \*3!56!/-\*0)!#@' &(!5. !+(90(/, dS- (!3#+)#, ()!. (45. , (.!&-#00!3#0(!#+!\*+\*, \*#0!. (45. , !@7!  
, (0(4-5+ (!, 5!, - (!#9(+/7!\*33())\*#, (07!5. !#&!&55+!#&!&!4. #/, \*/#@07!45&&@0(1#+)!&-#00!4. (4#. (!#+)!  
&(+)!#6#U!5. ! (0(/, .5+\*/#007!, .#+&3\*, !#18. \*, , (+!650058' 4!. (45. , !8\*, - \*+!>D!-5' .&!56!. (/(\*A\*+9!, - (!  
\*+65. 3#, \*5+!5+/(. +\*+9!, - (!+/\*) (+, dS- (!3#+)#, ()!. (45. , (.!3#7!\*+/0' )!8\*, -!, - (!. (45. , !#+7!  
+5+4. \*A\*0(9())!5/' 3 (+, #. 7!(A\*) (+/(!, - (!3#+)#, ()!. (45. , (.!45&& (&& (&! (0#, \*+9!, 5!, - (!+/\*) (+, d  
!"; \$!5. !4' .45& (&!56!, - \*&!#. , \*/0(1! . (#&5+#@0(!&' &4\*/\*5+a!3 (#+&!, -#, !\*, !\*!&!5@\_ (/,\*A(07!. (#&5+#@0(!  
65. !#14 (. &5+!, 5!(+, (. , #\*+!#!&' &4\*/\*5+!@#&())! 45+!6#/, &!, -#, !/5' 0)!/#' &(!#!. (#&5+#@0(14 (. &5+!  
\*+!#10\*0(!45&\* , \*5+!1) .#8\*+9!18- (+!#44. 54. \*#, (1!5+!- \*&!5. !- (.!, .#\*+\*+9!#+)!(U4 (. \*+/(1!, 5!  
&' &4 (/, !/-\*0)!#@' &(!5. !+(90(/, d`X (#&5+#@0(!&' &4\*/\*5+a!)5 (&!+5, !. (H' \*. (!/(. , #\*+ , 7!, -#, !/-\*0)!  
#@' &(!



05/#, ()!\*+!, -(!/5' +, 7!\*+!8-\*/-!, -(!\*3#9(&!#. (!&((+!P\*, -\*+!>D!-5' .&!56!. (/(\*A\*+9!, -(!  
\*+65. 3#, \*5+!/5+/(. +\*+9!, -(!\*+/\*) (+, !!, -(!. (45., (!&-#00!4. (4#. (!#+)!&(+)!6#U!5. !  
(0(/, .5+\*/#007!, .#+&3\*, !#!8. \*, , (+!650058' 4!. (45., !56!, -(!\*+/\*) (+, !8\*, -!#!/547!56!, -(!\*3#9(!5. !  
3#, (. \*#0!#, #/-)!)  
"=\$!%+7!/533(. /\*#0!/534' , (!, (/ -+/\*#+!8-5!-#&!0+580()9(!56!5. !5@&(. A(&!!

4.5/()' . (&!5!6#/\*0\*#, (#. (45., \*+9!#+)!#44. \*(&!&' 4(. A\*&5. &!#+)#) 3\*+\*&. #,5. &!56!  
. (45., &!3#7!@(!(&,#@0\*&-())!4. 5A\*) ()!,-#,#,-(7!#. (!+5,!\*/+5+&\*&, (+,!8\*, -!, -\*&!#, ,\*/0(!  
"=\$!S-(!\*+, (. +#0!4. 5/()' . (&!&-#00!+5,! (H' \*. (!#+7!(34057((!. (H' \*. ())!5!3#0(!. (45., &!  
4' . &' #+,!5!, -\*&!#, ,\*/0(!,5!) \*&/05&(!-\*&!5!-(. !\*) (+, \*, 7!, 5!, -(!(34057(. d  
">\$!X(45., \*+9!, -(!\*+65. 3#, \*5+!. (9#.) \*+9!#!/#&(!56!45&&\*@0(!/-\*0)!#@' &(!5. !+(90(/, !, 5!#+!  
(34057(. !&' 4(. A\*&5. !&/-550!4. \*+/\*4#0!&/-550!/5' +&(05. !/585. 0(!. !5. !5, -(!. !4(. &5+!  
&-#00!+5, !@(!#!&' @&, \*, ', (!65. !3#0\*+9!#!3#+)#, ()!. (45., !, 5!#+!#9(+/7!&4(/\*6\*)!\*+!  
J(/, \*5+!; ; ; DC<d d  
"b\$! %!/5' +, 7!4. 5@#, \*5+!5. !8(06#. (!) (4#. , 3(+, !&-#00!\*33())\*#, (07!15. !#&!&55+!#&!4. #/, \*//#@07!  
45&&\*@0(!. (45., !@7!, (0(4-5+(1!6#U!15. !0(/, . 5+\*/!, . #+&3\* &&\*5+!, 5!, -(!0#8!(+65./ (3(+, !  
#9(+/7!-#A\*+9!\_ . \*&)\*, \*5+!5A(. !, -(!/#&(1!, 5!, -(!#9(+/7!9\*A(+!, -(!. (&45+&\*@0\*, 7!65. !  
\*+A(&, \*9#, \*5+!56!/#&(&!'+) (. !J(/, \*5+!>MM!56!, -(!P(06#. (!#+)!0&&, \*, ', \*5+&!R5) (!#+)!5!, -(!  
)&,. \*/!, #, , 5. +(7f&!566\*/(!A(. 7!0+58+!5. !&' &4(/, ())!\*+&, #+/(!56!/-\*0)!#@' &(!5. !+(90(/, !, #&!  
) (6\*+())!\*+!J(/, \*5+!; ; ; DC<D!!(U/(4, !#, /, &!5. !53\* &&\*5+&!/53\*+9!8\*, -\*+!&' @)\*A\*&\*5+!@\$!56!  
J(/, \*5+!; ; ; DC<=!15. !. (45., &!3#) (!4' . &' #+, !, 5!J(/, \*5+!; ; ; DC<>@!##())!5+!. \*&0!, 5!#!/-\*0)!  
8-\*/-!. (0#, (&!&50(07!, 5!, -(!\*+##@0\*, 7!56!, -(!4#. (+, !, 5!4. 5A\*) (!, -(!/-\*0)!8\*, -!. (9' 0#. !/#. (!  
)' (!, 5!, -(!4#. (+, f&!&' @&, #+/(!#@' &(!8-\*/-!&-#00!@(!. (45., ())!5+07!, 5!, -(!/5' +, 7!8(06#. (!

