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

-.&"#/0"12)%"#

!"#\$%'&#'()%(#*+, -."#"(#\$+/0".(1#\$+, , "#*2%#)&)%(#3"%4".#52/3#%3*()3(#6#\varphi)/(."7#\varphi)/#
&%"/#5"#3"%4"1#\$2"*(#/3"#93"#: &/%'#;.+%5"#</\#(+, -)%(#*)3*#."&=\$>"1#:.+?"()3(#*"*#
4+/@"&"@"*#6#, +\%A'#4"&'"*#*/.#&"#*+\varphi#

\(\mathbb{\math}\mathbb{\mathba{\mathbb{\mathba\mathba{\mathbb{\mathbb{\mathba{\mathbb{\mathba{\mathbb{\mathba

5%: +*)%(#6#: .' *''3(#\/\mathref{#}*'', -\ellow)%'3(#\%''*A,)-\ellow''*7#X0''\$#\$''\ellow)1#\ellow#: +/0)%(#* '>/, ''\$(''.#\ellow)# 4+.4"#5'/3#0"."#5"#0%3#5"#.%/#-+3#,).\$>'1#*'%#\"#*+/>)%()%(!Z#,)%*#*/.(+/(1#%#:+/0)%(#)\$>"(".#/3#-+"#!"#\$\$"#%&'(%&#N*+/: "#5'+*#5"#-[/;P#:+/.#*)#;",,"#,)&)5"7# \)#;", , "#(+/**)%(#5": /%#: &/*#5 '/3#, +%7#D+, , "#%**#3 ')0)%'3(#*+/0"3(#, 0, "#:)*# 5"#</+\#:.':).".#/3\#4./)/\#5"\#, \%&\'(\1\\mathreat{\mathreal}\ma , '5%), "3(7#I"\$>3%</", "3(1#%#)/.)%(#: /#*"#5' - . + /%&".#: +/.#)\$>"(".#/3"#+/#5"/H# 5+*''*1#,)%#%#'()%(#;''., '', ''3(#\$+30)%3\$/#</'/3''#;+%#</'/+3#J!;)%(#;/%!K#/3''#,)&)5%'# 6#\$+/: *#5"#.", Q5"*1#\$"\&\"F\$\\m#\: ."\35#4+](#"(#."\0\\3(#*)3*\\m*\"*\\/\\D)3(\\m*\"\#: .\\3\\\\"\ : ".*+33"&1#%#3"#\(\dagger),)%#", , "3" "#\$>"Y#\(\dagger), '\$\%1#*\%-\%'3#</'\%#\\A3+.)\(\dagger)(+/(# 5"#*)#,)&)5%'7#8)%#6#&)#0+%#5'*+.,)%#\$+/\$>'"#6#: &)(#5+*1#%3\$):)-&"#5"#*"#(+/.3".1#%# '()%(#\$&)%#</''#\$''&)#'', :%)%(7#!''#,)&#*''()%(#)44.)0'#/3''#5%/)%3''#5''#?+/.*#:&/*#(V(1# \$+3*A:)A+37#^#\$"#, +, "3(F&61#C%, #)0)%(#93)&", "3(#: /#*"#: .+\$/.".#/3#: "/#52).4"3(1#)\$>"(".#/3#: "A(#*)\$#5"#, %&"(#"(#/3#;)4+(#5"#-+%#6#-)*#: .%H7#\"&+3#*"*#5%"*1#J!\$"@"# -+33"F6F.%'31#:)3%/'"1#2)0)%(#;)%(#-+/%%%#5)3*#/3"#,)., %("!K7#!"#;"/#'()%(#;)%-&"1# "&\"#" ()%(#: .''**' "1#" (#\"#, %\\"(#32)0)%(#:)*#-%'3#\$/%(7#B+/.()3(1#J!\$"@"#5), 3' "#;", , "!K#)0)%(#*)%%#5"#: &"%3"*#: +%43""*#5"#, %&"(#"(#\"*#)0)%(#"3;+/.3""*#5)3*#*)#-+/\$>"1# \$+,,"#*\#''&\"\#\$.)\#3)\(\f\=\/2\+3\f\0\''33'\\#\\\#\)..)\\$>''.7\#G&\"\#\)0)\(\f\\$\+3A3\'\\\#?\/*<\/26\#\)0\\\# &''*#?+/''*#4+3_' ''*#\$+, , ''#5''*#: +%34*7#! ''#*+%#, O, ''1#''&&''#4' , %**)%(!`#''&&''#)0)%(#,)#&)#

J!a+3#*)341#;", , "!b#I /#(+, -"*#,)&)5"#</)35#(/#3"#,)34"*#:)*1#"(#(/#(+, -"*#

"3\$+."#,)&)5"#</)35#(/#,)34"*!b#c/2"*(F\$"#</"#!"#*/%#\$"3*'#;)%"!d#e/0."#5+3\$#\"*#

M"/H!b!K#

U&#)0)%(#4%_' #&)#?+/"#5"#*)#;", , "1#</#4"%43)%(1#)&&+34' "#6#*"*#: %'5*7#G&&"#)0)%(#
"3(.+/0".(#/3#: "/#: &/*#\"/H1#,)%#5"*#\)., "*#M#-.%&Q."3(#)/**%(V(7#G(#C%, 1#\/\#
)/**%#*"3A(#*"*#\"/H#\"\#-.]&".7#

B+/.()3(1#, 0, "#5)3*#\$"(#'()(1#"&"#3')0)%(#:)*#:".5/#&')::'A(7#W":/%#(.+%#?+/.*1#

"&"#*/::8%)%(#*+3#,).%#5"#k/%.)::+.(".#/3#:"/#5"#-+/%&+3#5"#!"#\$\$"#%&'(%&7#

J!D"@"#,)/5%("#;", , "!b#1/#3"#*/::+.("*#, 0, "#:)*#\"#4./)/#5"#, %&"(#"(#(/#0"/H#5/#

!"#\$"#%&'(%&!d#D',"*(#:+/.#."(+, -".#,)&)5"#(+/(#5"#*/%("#):.Q*!d!K#

U&#\',0)%(#*"., +33""#)%3*%#,)%#)/#;+35#5"#k/%#\"#;)%(#5"#3"#:)*#:+/0+%#\"#k/%)\$>"(".#

&"#.+34")%(7#

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C%, #*2%, , +-%%*)#"(1#"3#*"#."(+/.3)3(1#): ".R/(#/3#'&Q0"#5"#\$"@"#, 0, "#'\$+&"#</\#
)\$\$+/.)%(7#!"#?"/3"#4).R+3#&)3R)!`#

J!D+, -%'3#/*</26#)#4)."#5"#h), 5)", /3!d!K#

D2' ()%(#*) 3*#5+/("#/3#: "3*%+33)% "#</#."3(.)%(#\$>"Y#k/%: +/.#\"*#0)\$) 3\$"*#52>%0".7#\&#

)0)%(#5]#: .'0+%#5"#:).A.#\$"#?+/.F\&61#,)%#"3(."#\)#: \&/%'#"(#*"*#-)4)4"*1#\"#*)0)%(#:)*#

\$+, , "3(#;)%"7#B/%#\&#)0)%(#0/#C%, 1#\$+/.)3(#*+/*#\)#: \&/%'1#\$>)/**'#5"#*+/\&%'.*#6#5", \%

/*'*#"(#00(/#52/3#>)-%(#+\$\$\%5"3()\&#'\&\%'\7#

J!I/#0"/H#)&\".#6\\mathrew\)#4).\"\#5\\\mathrew\), 5)\\\, /3!d!K\\mathrew\

C%, #>' *%()#/3#%3*()3(7#D.)%43)%(F%#5"#;)%"#/3#*%%+34#(.)?"(#*+/*%)#: &/%"#*)3*#

: .+("\$A+3!d#e/#"()%(F%#5'?6#*)A*;)%(#5"#\$"#</2%#)0)%(#4)43" #%"#,)A3!d#h+31#:)*#5/#

(+/(7#D2'()%(#: &/(V(#/3#&'4".#*"3A, "3(#5"#\$.)%3("#5"0)3(#()3(#5"#\$>)3\$"#*+/5)%3"7#W"#

: &/*1#%#*+34")%(#6#&)#5",)35"#5"#*)#;", , "#\$"#,)A3F&67#c/)35#&)#0+%%3"#&')0)%(#

):: "&'1#*)#;", , "#T #&"#0%)4"#5'\$>).3'1#&"*#M"/H#\$+, , "#5".3%'.#."_"(#5"#0%'1#4.)35*#

"(#\$)0"*#T #&')0)%(#."4).5'#5'/3#)%#*/:: &%)3(7#

J!h"#*+.*#:)*#)/?+/.5'>/%#i"*("#6#\)#,)%+31#?"#*/%#(.+:#,)&j !K#

J!a+3#*) 341#;", , "1#(/#5' &% "*!d#\\%?"#."*("#\61#</\%0)#3+/*#3+/..\%!d!K#

."("3%7#

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G&&''&'')0)%#):: ``&' #5 '/3''#0+%H#' (.) 34&' ''#() 35%#</' %#*' '&+%43)%7#

^#: .' *''3(1#''3(''35)3(&',' &Q0'' & /\#5'',)35''.#5')&\''.#?/*</',6\\)#4).''1#C\\,#.''0\(#''3#

: "3*' "#\"*#,)%3*#(.", -\()3("*#5"#*)#;", , "1#*"*#4.)35*##