



79FH=:=75H9'C:'7CB:CFA=HM

V@ā•ÁÔ^¦ċā-ã&æc^Áå[^•Ác@^¦^-[¦^Á}[ċÁ¦^]|æ&^ÁæÁ&[{]¦^@^}•āç^Á•æ-^c^Áæ••^••{^}ċÁ[-Ác@^Á-¦æ*¦æ}&^Á{ā¢c*¦^È

79FH=: M=B; D5FHM.

 Ô!æ-ci-~ |ÁŠVÖ

 FÏÁÙcæ]|^å[}ÁÜ[æå

 U!c[}ÁÛ[*c@*æc^

 Ú^c^!à[![*@

 ÚÒGÁÎVÖÄÕÁÄÄW}āc^åÁSã}*å[{

79FH=:=75H9'89@=J9F98'HC.

ÔÜŒØVQØWŠÁŠQTQVÒÖ

G7CD9'C: H<9'79FH=:=75H9.

ΆŴØÜŒÕÜŒÞÔÒÁÌJÏ€FÏ

7CADI@GCFM'=B:CFA5H=CB.

QØÜŒÁÔæc^*[¦ã^•ÁŽ•^^ÁŒ}}^¢ÁFÁà^ [¸Á~[¦Áå^cæā •á	Tæ¢å{ ~ {ÁŠ^ç^ Á[~Á~•^ÁÇÃD
QØÜŒÁÔæc^* [¦^ÁF	Þ[dæ]]¦[ç^å
QØÜŒÁÔæc^* [¦^ÁG	ÌĖGJÃ
QØÜŒÁÔæc^* [¦^ÁH	GJĖG Ì Ã
QØÜŒÁÔæc^* [¦ ^ Á I	Þ[cÁ ā { āc^å
0ØÜŒÁÔæc^* [¦^ÁÍŒ	I€ÈIGÃ
0ØÜŒÁÔæc^* [¦^ÁÍÓ	I€È€€Ã
ũØÜŒÁÔæc^* [¦^ÁÍÔ	I€ÈIGÃ
0ØÜŒÁÔæc^* [¦^ÁÍÖ	FHÈÍ Ï Ã
QØÜŒÁÔæc^* [¦^ÁÎ	Þ[cÁæ]]¦[ç^å
0ØÜŒÁÔæc^* [¦^ÁÏŒ	ı ïÈÌ Í Ã
0ØÜŒÁÔæc^* [¦^ÁÏÓ	ı ïÈÌ Í Ã
QØÜŒÁÔæc^* [¦^ÁÌ	FHÈÍ Ï Ã
0ØÜŒÁÔæc^*[¦^ÁJ	Þ[cÁ ā { āc^å
0ØÜŒÁÔæc^*[¦^ÁF€Œ	Þ[cÁ ā { āc^å
0ØÜŒÁÔæc^*[¦^ÁF€Ó	Þ[cÁ ā { āc^å
0ØÜŒÁÔæc^*[¦^ÁFFŒ	FHÈÍ Ï Ã
ℚØÜŒÁÔæc^*[¦^ÁFFÓ	FHÈÍ Ï Ã
ũØÜŒÁÔæc^* [¦^ÁFG	Þ[cÁ ā { āc^å

Ø[!Á[c@^!Á\ā}å•Á[~Áæ]]|ã&æcā[}Á[!Á~•^ÁæcÁ@ā*@^!Á&[}&^}c!æcā[}Á|^ç^|•ÊÁæÁ}^¸Á^çæ|*æcā[}Á&æ}Áà^Á}^^å^åLÁ]|^æ•^Á&[}cæ&c Ø!æ*!æ}&^ÁUā|•ÁÇQ}c^!}æcā[}æcā[}æplÁŠā{āc^å

9 I 7CGA9H=7 =B: CFA5H=CB.

Y^Á&^¦cā-^Ác@æcÁc@^Áæà[ç^Á{ā¢cˇ¦^Áā•Áā}Á&[{]|āæ}&^Á¸āc@Ác@^ÁÒWÁÔ[•{^cã&ÁÜ^*ˇ|æcā[}ÁFGGHÐG€€JÁæ}åÁāc•Áæ{^}å{^}c•Ê]¦[çãå^åÁācÁā•Áˇ•^åÁā}Ác@^Á-[||[¸ā}*Áæ]]|ā&æcā[}•ÁæcÁæÁ{æ¢ā{´{Á&[}&^}c†æcā[}Á|^ç^|Á[-K

Ô[•{ ^cå&ÁŒ]] å&æcå[}	Tæ¢ä{~{ÁŠ^ç^ Á[~Á~•^ÁÇÃD
Ö^[å[ˈlæ]cʎ•] ˈlæ^	ÏÈFIÃ
Øæ&^Á⊤æ\^ˡ]Á]¦[åˇ&c•	ÏĖFIÃ
Ò^^ÁTæ\^Ë~]Áæ}åÁ¦^ { [ç^¦	ÏĖFIÃ
Øä}^Áئæ*¦æ}&^	Þ[cÁ ā { āc^å
Òæ´Áå^ÁV[ā ^c^	ÏFĖIGÃ
ئæ*¦æ}&å}*Á&¦^æ {	HÍÈÏFÃ
Ù~}•&¦^^}Á]¦[å~&c•	ÏĖFIÃ
Ó[å^Á [α[}Á•]¦æ^	ÏĖFIÃ
Þæi Á&æ¦^Á]¦[åˇ&c∙	ÏĖFIÃ
Pæi¦Á]¦[å`&c•ÁÇ•]¦æ^Đæ^¦[•[D	ÏĖFIÃ
Pæi¦Áå^^	FIÈGÌ Ã
Uc@^¦Á ^æç^Ë[}Á&[•{^cä&Á]¦[å~&c•	ÏĖFIÃ
Pæ}åÁ¸æ•@Á]¦[åˇ&c•	FIÈGÌ Ã
Uc@^¦Á¦å}•^Á[~Á&[•{^cå&Á]¦[å~&c•	FIÈGÌ Ã
U¦æ Á]¦[åˇ&c•	Þ[dæ]]¦[ç^å

Ü^* |æc[|^ÁŒ~~æå|•ÁÖ^]æ|c{^}c

5BB9L'%

QØÜŒÁÔæc^*[¦^	Ú¦[å~&dV^]^
QØÜŒÁÔæc^* [¦^ÁF	Ú¦[å~&c•Áæ]] i^ååkc[Ác@^Á i]•KÅŠi]Á]¦[å~&c•Á^È*ĚÁ i]•ci&\ĚÁ i]Áàæ {LÁÔ@i å¦^}•Ác[^•
QØÜŒÁÔæc^* [¦^ÁG	Ú¦[å~&c•kæ]] à^åkc[kc@^kæ¢à æ^KhÖ^[å[!æ}ckæ}åkæ}ci]^!•]å!æ}ch]¦[å~&c•h[~kæ hc^]^•LhÓ[å^k•]¦æ^•Ð{å•c•
ùØÜŒÁÔæc^* [↓^ÁH	Ú¦[å`&c•kæ]] i^âkc[kœ^kæ&^Dà[å^k`•i}*^ki}*^\ci]•kkÒ^^k]¦[ā`&c•knÈ*Èk^^^k {æ\^È`]Ēk^^^k [ie·c`ii:^¦LkØæ&iæ {æ\^Ê`]LkTæ\^Ê`]k!^ { [ç^¦LkÞ[•^k][¦^k•c!i]•LkYi]^•k-[¦k-æ&^Ék}^&\Ék@æ}å•Ékà[å^LkØæ&iæ k{æ•\•LkÓ[å^ æ}åk-æ&^k]æi}c
ùØÜŒÁÔæċ^* [¦^ÁI	Ú¦[å~&c•Å!^ æc^åkc[¼-i}^k-!æ*!æ}&^k\P^å![æ &[@[i&kæ}åk}[}E@^å![æ &[@[i&k-i}^k-iæ*!æ}&^k[-kæ kc^]^•k*È Òæ~kå^kV[i ^cc^ÈkÚæ!~~{ÈkÔ[[*}^Ek@[iāk]^!~`{^Ek-!æ*!æ}&i}*k&!^æ{Ekæ-c^!•@æç^•k[-kæ kc^]^•Uh0}*!^åi^}c• [-Å]^!-~{^kæ}åk-!æ*!æ}&^k{i¢c~!^•k-[!k&[•{^ci&k\ic•UhÛ&^}ck]æå•UkÛ&^}ck-cii]•
ŴÜŒÁÔæċ^* [¦^ÁÍŒ	Ó[ā^k [ci[}k]:[å~&c•kæ]] i^åkc[kc@^kà[ā^k~•i}*kc@^k@æ}å•kC]æ {•Dtk]!ia{æ;i^k ^æç^k[}KkØ[[ck&æ;^k]:[ā~&c• ^£*£k&;^æ{•£k][_ā^;•LkQ}•^&ck^]^ /^}ck-[!kæ]] i&æci[}kc[kc@^k•\i}LkŒ k][_ā^;•kæ}åkcæ &kÇ^¢& ~åi}*kàæà^][_ā^;•kæ}åkcæ &D
ŴÜŒÁÔæc^*[¦^ÁÍÓ	Øæ&^Á { [å•oˇ¦ā:^¦Á]¦[åˇ&c•Áæ]] ã^åÁc[Ác@^Á-æ&^Áˇ•ā}*Ác@^Á@æ}å•ÁÇ]æ { •DÉÁ]¦ā { æ¦ā ^Á ^æç^Á[}KÁØæ&āæ Ác[}^¦L Øæ&āæ Á { [å•oˇ¦ā:^¦•Áæ}åÁ&¦^æ { •
ŴÜŒÁÔæc^*[¦^ÁÍÔ	Pæ}åå&i^æ{å];[å~&c=åæ]] å^ååc[åc@^å@æ}å=å~=å*=å**åc@^å@æ}å=å¢]æ {=DÉÅ];å{æ;å ^å ^æç^å[}KÅPæ}åå&;^æ{LÅDæå &æ;^å];[å~&c=åå}& ~åå}*å&~cå& ^å&;^æ{=LÅDæ}åå=æ}åc:^;=
QØÜŒÁÔæc^* [¦^Á Í Ö	Óæà^k&i^æ { •Ékàæà^k[i]•kæ}åkàæà^kœ &KklÓæà^k&i^æ { Ð[[ːi[]Èkàæà^k[i]Ekàæà^k][, å^i•kæ}åkæ &
ŴÜŒÁÔæc^*[¦^ÁÎ	Ú¦[å~&c•Ÿàc@Å[¦æ Áæ}åÅ å]Å^¢][•~¦^KÁV[[c@]æ•c^LÁT[~c@¸æ•@ÊÁå}& ~åå}*Åà¦^æc@Á•]¦æ^•LÁV[[c@][¸å^¦É •c¦å]•ÉÁ{[~c@¸æ•@Ácæà ^c•
ŒĬÀ^¦]*^œÔÀŒÜQ	Üi}•^É[Á]¦[å~&c•Áæ]] i^áÁc[Ác@^Á@æi¦Á¸ic@Á•[{^Á@æ}åÁ&[}cæ&cKÁPæi¦Á]^¦{æ}^}ci[!Á[c@^¦Á@æi¦Á&@^{i&æ c!^æc{^}c•Áçli}•^Ĕ[DÁ^È*ÉÁ!^ æ¢^!•ÉÁ}& ~ái}*Áli}•^Ē[Á@æi¦Áå^^•
(ØÜŒÁÔæ¢^* [¦^ÁÏÓ	Š^æç^Ē[}Á]'[ā^&c•Áæ]]jà^āċc[ċ@^k@æitk¸is@k•[{^k@æ}āk&[}cæ&ckkPæitk•]tæ^•k[-kæ kċ^]^•k^E*tk]^{]•Ē æ^![•[k•];æ^•ki+eo^ji}*kæiä*k}]},k•];æ^•k^E*tk[[`••^tk]%æç^Ek]}k&[}åici]}^!•k-k# kc^]^•k[-kæ]^;{æ}^}cl[ik[c@^! @æitk&@^{i&æ kc!^æc{^}ce*k[^æç^E[]Dk^E*Ek!^ æ¢^!•Ēki}& ~äi}*k ^æç^E[]k@æitkå^^•LhÙ@æ{][[kĒkÖ;^kǸæc^! ^•• •@æ{][[DLkPæitkå^[å[i:^!
QØÜŒÁÔæc^* [¦^ÁÌ	Ú¦[å~&c•Ÿàc@Á•à*}à-å&æ}ckæ}[*^}iœk^¢][•~'\^KkQ}ci{æc^Á¸à]^•LÁVæ{][}•LÁÓæà^Á¸à]^•LÁV[à ^cÁ]æ]^\ÁǸ^cD
(IÅ1] *^3æÔæ0*	\(\text{\figuresize} \pi_{\text{\pi_{\xitext{\pi_{\text{\pi_{\text{\pi_{\text{\pi_{\text{\pi_{\text{\pi_{\text{\pi_{\text{\pi_{\text{\pi_{\text{\pi_{\text{\pi_
ŴÜŒÁÔæv^*[¦^ÁF€Œ	P[~+@[Ád&æ ^A^¢& ~åå}*kæ^[-e[Ábh•] æ^Á] [ā~&c*kiPæ}åi_æ•@A æ~}å ^kā^c^!*^}cikšæ~}å!^á]!^Ēc!^æc{^}c [-kæ Ác^]^•A^E*Ēh]æ•c^Ēh•ci&\•LiTæ&@i}^A #a~5]* Aa~c^!*^}c•h_ia:@A•\i}k&[}cæ&ch^E*Ēh]i~åå!*•L Øæàiå&h•[-c^}^!•h[-kæ Ác^]^•hi}& ~åå}**h-æàiå&h•[-c^}^!h**@^^c-kh]i~i*a**!Aa^c^!*^}c Pæ!äh*`!-æ&^A& ^æ}^!•h[-kæ Ác^]^•hi**e*E*E*Aææ@![[{Ēh\āc&@^}k& ^æ}•^!•Ēh~~!}ài~!Ah][ja•@kh^E*E*Aææ]i*Ah]![å~&c*!*Ah][ja•@kh^E*E*E*Aææ]i*Ah]![å~&c*E*E*E*E*E*E*E*E*E*E*E*E*E*E*E*E*E*E*E
0ØÜŒÁÔæc^* [¦^ÁF€Ó	P[~^@[åkæ^\;[•[0•]!æ^k]:[å~&c•KAŒ}i{@ k•]!æ^•kæ]] i^åkc[kæ}i{@ •LAŒikk-;^•@^}^!k•]!æ^•Ék{æ}*@ Éi}& ~åi{}*kæ^!;[•[kæ}åk]`{]LAŒ^!;[•[0•]!æ^ki}•^&ci&āi^•
ŴÜŒÁÔæ¢^* [¦^ÁFFŒ	Ú¦[å~&c•Ÿàc@Áå}c^}å^âÁ•\à}Á&[}cæ&chà~ch{i}á{æjhc¦æ}•-^!Á[-Á-¦æ*!æ}&^hc[Á•\i}Á-¦[{Ái}^!chē~à•c!æc^Á¸àc@[~c WXÁ^¢][•~!^KhØ^{i}já}^h@^*i^}^A&[}ç^}ci[}æjh]æå•Éhji}^!•Éhi}c^! æàiæjh]æå•LhÖiæ]^!•Áçàæà^kæ}åkæå~ cDL Œå~ chi}&[}ci}^}3^8^Á]æ}cÉh]æåLhV[i]^ch]æ]^!hçå!^D
ŴÜŒÁÔæ¢^*[¦^ÁFFÓ	Ú¦[áˇ&c•Ÿã:@Ái}c^}á^áÁ•\ã)Á&[}cæ&clàˇch{{ā}ã{æ hc!æ}•-^\h[-h-¦æ*!æ}&^hc[h•\ã}h-¦[{Ái}^\cheˇà•c!æc^Ÿā:@][c^}ciæ hWXÅ^@][•ˇ¦^KVā*@c•Ÿā:@k]c*ā;a:^\•\hÙ&^}c^âh•[&\•Éh* [ç^•\hØæ&āæ hci••ˇ^•hçå;^hci••ˇ^•DL 中æ]\ã}•LhÚæ]^\hc[¸^ •LhY@^æchàæ*•LhØæ&āæ h{æ•\•hç]æ]^\b]¦[c^&ciç^Dh^É*Éh•ˇ¦*ā&æ h{æ•\•h}[chˇ•^åhæ• {^åå&æ hå^çå&^LhØ^!ci]ā:^\•Éh•[jāh¢]^ ^ch[!h][¸å^\D
QØÜŒÁÔæc^*[¦^ÁFG	\(\text{U}\[\a^\ac\ac\ac\ac\ac\ac\ac\ac\ac\ac\ac\ac\ac\