

# **COMD5001**

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COMD5001 Term 2, 2021 published at 26-04-2021 // © University of New South Wales, 2021

# 7 ci fgY<sup>-</sup>Cj Yfj ]Yk

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### 7cbj Ybcfg

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- % 9I d`U]b`\_YmWcbWfdhgžUddfcUWXYgž`]ggi Yg`UbX`UWX]Yj Ya Ybhg`cZXYj Y`cda Ybhih\Ycf]Yg`Udd`]YX`Ug XYj Y`cda Ybhidc`]Whi]b`XYj Y`cd]b[`Wci bhf]Yg
- &" 8Yj Y`cd`U`WF]hJWU``dYfgdYWhjj Y`cZXYj Y`cda Ybhdc`]WJYg`]a d`Ya YbhYX`hc`UXXfYgg`\_YmUgdYWhg`cZ i bYj Yb`XYj Y`cda Ybhž`ZcWi g]b[`cb`a U'cf`]a d`]WUhjcbg`Zcf`h\Y``cWU``Wca a i b]hJYg
- '" I bXYftU\_Y'Wf]t]WU``gcWjU``gWjYbWY`fYgYUfWXž]bXYdYbXYbhmUbX`]b`U`hYUa Ybj]fcba YbtžUbX XYj Y`cd`h\Y`\_bck`YX[Y`UbX'Wca a i b]WUt]cb`g\_]``g`bYWYggUfmhc`Yb[U[Y`]b`]bhYfbUt]cbU`
  - XYj Y`cda Ybhdc`]WmUbU`mg]g`UbX`dfUWjWY

### HYUWX]b[ GhfUhY[]Yg

H\]gʻWci fgY`]gʻXYg][ bYX`hc`Vi ]`X`\_bck`YX[ Y`UbX`g\_]``gʻ]bʻfY`Uhjcb`hc`XYj Y`cda YbhdfcV`Ya gʻ]b`XYj Y`cd]b[ Wci bhf]YgžXYj Y`cda Ybhdc`]WhžUbX`h\Y`WcbgYei YbWYgʻcZdc`]WhiUbX`dc`]WhifYZcfa "`H\Y`cVYWfj Y`]gʻhc ZcW gʻcb`h\Y`fUb[ Y`cZk Umg`k Y`WUb`]XYbhjZmXYj Y`cda YbhUgʻUb`]ggi Y`fZcf`YI Ua d`Y`Ugʻdcj Yfhmcf X]gUghYfhŽi]hgʻWca dcbYbhgʻfYWcbca ]WžgcWjU`ž'W``hi fU`E'UbX`gc`i hjcbgʻfZcf`YI Ua d`Y`Ugʻdc[ fUa gž'dc`]WjYg YhWE'hc`dfcV`Ya g`h\UhUfY``cWU`ž'bUhjcbU``UbX`[ `cVU``]b`V\UfUWfYf"`Nci `k ]```\Uj Y`h\Y`cddcfhi b]hmic`]bhYfdfYhž UbU`mgY`UbX`dfcdcgY`gc`i hjcbg`hc`XYj Y`cda Ybhj]ggi Ygʻi g]b[ `U`fUb[ Y`cZdf]bWjd`Yg`Wcbghfi WfYX`Ugʻh\Ycf]Yg UVci hXYj Y`cda Ybhih\UhUfY`cZhYb`]b`WcbZ]Wik ]h`YUW\`ch\Yf`UbX``YUX`hc`U`fUb[ Y`cZ]bhYbXYX`UbX i b]bhYbXYX`dfUWhjWU``ci Hvca Yg"`H\Y`Vci fgY`k ]``YbVci fU[ Y`nci `hc`Yb[ U[ Y`]b``YUfb]b[`h\fci [ \`ghfi Wfi fYX UWjj ]hjYgž`]bXYdYbXYbhWf]hjWU``h\]b\_]b[`UbX`fYgYUfW\!VUgYX`k cf\_"`5ggYgga Ybhg`k ]```Vi ]`X`\_bck`YX[ Y`UbX g\_]``g']b`U`fUb[ Y`cZXYj Y`cda Ybhdc`]Wmicd]Vg`UbX`UggYgg`Vch\`k f]hYb`UbX`cfU``dfYgYbfUhjcbg''

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#### 8YHJ]`g.

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#### 5XX]h]cbU``XYHJ]`g.

9ggUmei Ygh]cb. K \Uh\_Ym]XYUg`\Uj Y`mci ``YUfbYX`UVci hXYj Y`cda Ybhdc`]WhiZfca `h\Y`Wci fgY`gc`ZJf3`

=b<sup>\*</sup>\$\$'k cfXgžfYZYWicb'U'\_Ym]XYU'h Uhmci `\Uj Y`YUfbYX'Zfca 'h\Y'dUgh'ZYk 'k YY\_g'`YWi fYg'UbX fYUX]b[g"'Mci 'UfY'bchYI dYWYX'hc'Xc'fYgYUfW\ci hg]XY'cZh\Y'fYWcfXYX`YWi fYg'UbX'fYei ]fYX'#gi [[Ygh/X fYUX]b[gžVi hmci 'UfY'YI dYWYX'hc'fYZYf'UbX'W]hY'fY`Yj UbhfYWcfX]b[gžfYUX]b[g'UbX'UbmcZh\Y'fYWcfXYX k YY\_`mhi hcf]U``X]gWi gg]cbg"

5 gi [[YghYX ghfi Wi fY cZfYZYWi]j Y YggUma ][\hVY.

%" +btfcXiWfjcbifk \Uhjgih\Y`\_Ymih]b[ 'mci `\Uj Y``YUfbYX#gi fdf]gYX#W\U``Yb[ YX'mci 3`ff %\$\$`k cfXgŁ' &" : ]fghhcd]W#\Ya Y#Uf[ i a Ybhk ]h\`gi ddcfh]b[ `Yj ]XYbWY`UbX`mci f`UbU`mg]g`fr &\$\$`k cfXgŁ' ' " GYWcbX`hcd]W#\Ya Y#Uf[ i a Ybhfr &\$\$`k cfXgŁ' ( " 7 cbWi g]cb`fr %\$\$`k cfXgŁ'

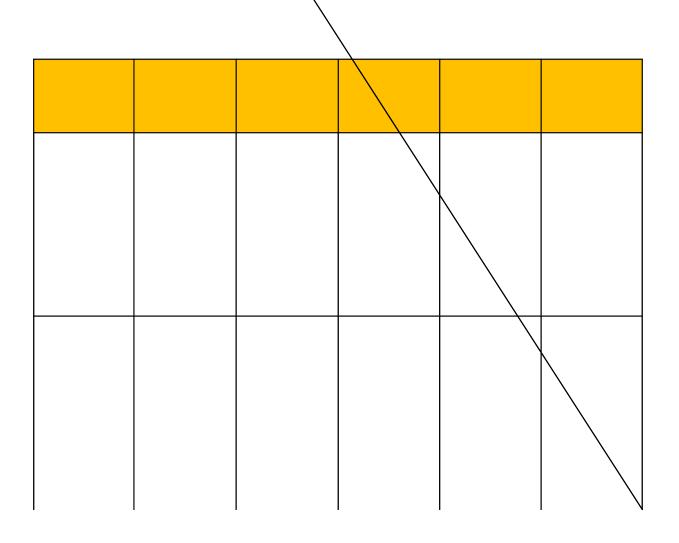
A Uf\_]b[ 'fi Vf]Wg.'

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- A jojghYfiZcf: cfY][bi5ZU]fgiUbXiA jb]ghYfiZcfiK ca YbiGYbUhcfihYi<cbiA Uf]gYiDUmbYiUbXi5gg]giUbh-8YZbWYiA ]b]ghYfiUbXiA ]b]ghYfiZcfi thYfbUh]cbU`i8Yj Y`cda YbhUbXih YiDUV]Z]WhYi<cbi5`YI <Uk \_Y A D`\\iYiUbbci bWYX'U'Wcbgi `hUh]cbidfcWYggihci[i]XY'U'bYk i5i ghfU`]UbiXYj Y`cda Ybhdc`]Wh'iH\]g dc`]WhK\``Xf]j YihY'; cj Yfba Ybhfgi]bhYfbUh]cbU`iXYj Y`cda YbhYZcfhgi]bigi ddcfhicZgYW f]mž ghUV]]mž&fcgdYf]miUbXifYg]`]YbWY]bihYittaXc!DUW]Z]Wi
- 6i ]'X]b[ 'cb H Y': cfY][ b'Dc`]WmK \]HY'DUdYfžth Y'bYk 'dc`]Wmk ]```[ i ]XY'5i glfU']UfgrXYj Y'cda Ybh dfc[ fUa 'UbX Ybgi fY']hfYa U]bg'U'][ bYX'k ]h 'h Y'; cj Yfba YbhfgrghfUhY[ ]Wdf]cf]h]Yg"H\Y'dc`]Wmk ]`` Wcj Yf'XYj Y'cda Ybhdfc[ fUa 'UWfj ]h]Yg'Ug'k Y``Ug'k ]XYf'[ cj Yfba Ybh]b]h]Uh]j Yg'h Uhgi ddcfh ]bhYfbUh]cbU``XYj Y'cda Ybh''=tik ]``U'gc'fYZYWith Y'; cj Yfba Ybhfgi]bWfYUgYX'Ya d\Ug]g'cb'ghfUhY[ ]W UbX'YWcbca ]WdUffbYfg\]dg']b'h Y'=bXc!DUW]ZWUbX']hg'DUW]ZWGhYd!i d"
- H\Y'bYk 'dc']Wnk]```fXZYWih\Y'; cj Yfba Ybffgid'Ub'fc'fYfU]b'U'fUf[YfrX'UbX'YZ]W]YbhXYj Y`cda Ybh Vi X[YficZ" ('V]``]cb'dYfmYUf"
- cf'YI Ua d'Yg'cZdc`]Wngi Va ]gg]cbgž'WXYW\_'ci hih ]g'`]b\_. '<u>hhdg.#k k k "XZUh'[ cj "Ui #U]X#oYk !</u>'
  <u>bhYfbUhcbU'!XYj Y'cda YbNdc`]Wn#DU[ Yg#gi Va ]gg]cbg</u>
- Hc \\Uj Y U'gYbgY cZ8: 5H'g XYj Y`cda Ybhdc`]Wndf]cf]h]Yg fDfY!7CJ =8!% ŁžgYY A ]b]ghYf Zcf =bhYfbUh]cbU`8Yj Y`cda Ybhž 5 \I < Uk \_Y'g \_YmbchY gdYYW Uhh\Y &\$&\$5i ghfU`]U'5]X 7 cbZyfYbW.</li>



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	WU]a g	]ad`]WUhjcbhc	Dc`]Wm		
				fYZYfYbW]b['hc	Uf[iaYbhUbX
		XYj Y`cda Ybh	XcWiaYbhgʻUbX	_Ymidc`]Wm	h\Y`Yj]XYbWY
		dc`]WmiVihi]g	dfcj ]XYg	XcWiaYbhgicf	W <b>]hYX`f]b</b> `ch∖Yf
		gi dYfZJWJU``fY"[ "	UbU`mg]g	UWUXYa]W	k cfXgžbch
		UXX]b[	VYHK YYb	`]hYfUhifY^k]h∖	dihhjb[
		gHJHjgHjWg	YI]gh]b[	[ccX <sup>*</sup> UbU <b>`</b> mg]g	W <b>jhUhj</b> obgʻZofih\Y
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Hi fb]h]b`gYh]b[.`H\]g`]g`bchU`Hi fb]h]b`Ugg][ ba Ybh

5ggYgga Ybh' . FYgYUfWX DUdYf

GHUfhXUhY.Bch5dd`]WUV`Y

@Yb[h\." \$\$\$"k cfXg

#### 8YHJ]`g.

7\ccgY'Zfca'h\Y``]ghicZeiYgh]cbg'cf'WfYUhY'mcifickbifd'YUgY'Wcbgi`hk]h\YWcifgY'WcbjYbYf']Z W\ccg]b['mcifickbieiYgh]cbt"'H\Y'dUdYf']g'id'hc''\$\$\$`kcfXg`]b'UXX]h]cb'hc'fYZYfYbWfg'CF'mci`\UjY'h\Y cdh]cb'cZ\Uj]b['U'HU\_Y'\caY'hYgh]bghYUX"'H\Y'HU\_Y'\caY'hYghk]```[c'Zcf'Z]jY'XUmgž'UbX'mci'bYYX'hc'kf]hY h\fYY'g\cfh`YggUmg'f%\$\$\$`kcfXg'dYf'g\cfh`YggUmt"'H\Y'eiYgh]cbg'k]``VY'fY`YUgYX'cbY'XUm'YZcfY'hYgh ghUfhg"'Kf]hHyb'ZYYXVUW\_'UbX'U'aUf\_'k]``VY'dfcj]XYX'k]h\]b'&'kYY\_g'cZgiVa]gg]cb"

#### 5XX]h]cbU``XYHJ]`g.

7\ccgY`U`ei Ygh]cb`Zfca`h\Y``]ghcZei Ygh]cbg`UbX`k f]hY`U`a U`cf`YggUm'`H\Y`YggUmi]g`i d`hc`' ž\$\$\$`k cfXg`]b UXX]h]cb`hc`fYZYfYbW¥g"

Ghi XYbhg`\Uj Y`U`W\c]WY`hc`gY`YW]b[`cbY`cZh\Y`ei Ygh]cbg`Zfca`VY`ck.

%" H\Y`G8; g`\Ug`h\Y`Ua V]h]ci g`cj YfU```U]a `hc`"YUj Y`bc`cbY`VY\]bX"" `8c`mci `U[ fYY`cf`X]gU[ fYY`h\Uh ]h\Ug`VYYb`XY`]j Yf]b[`h\]g`dfca ]gY3`cf

AUf_]b[ ₩f]hYf]U	\$!(-1	)\$'!`*)।	*) * *+(   *	+) <sup>· ·</sup> , (I 8	2 <sup>-</sup> , )। <8
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# 5 HYbXUbWY FYei ]fYa Ybhg

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# 7 ci fgY GWX YXi `Y

## J JYk WWW.gggihjajaYMHVYYY

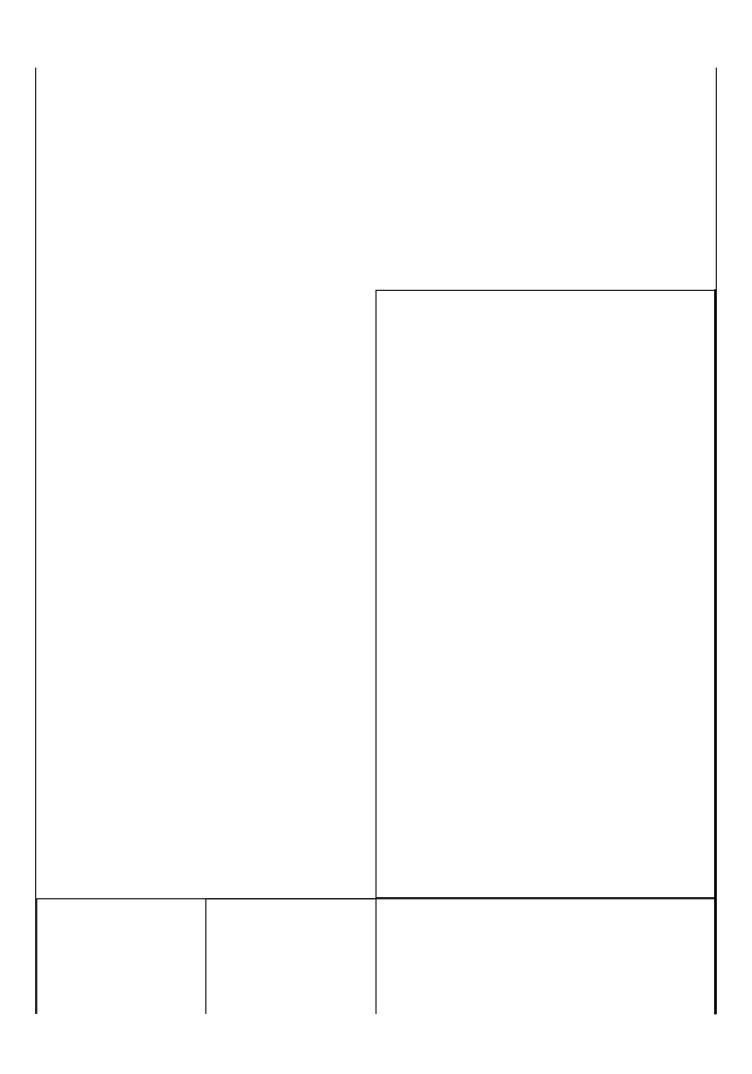
# H]a YHJV`Y'

HmdY	7cbhYbh

		<pre>&lt; ck `WUb`k Y`h\]b_`cZdi V`]Wdc`]WmW\Ub[Yg3`K \Uh UfY`h\Y`_YmW\U``Yb[Yg'UbX`cddcfhi b]h]Yg'hc`g\UdY dc`]W]Yg`]b`]bhYfbUh]cbU``XYj Y`cda Ybh3`&amp;`h\]g gYa ]bUfž`k Y`YI d`cfY`]ggi Yg`fY`UhYX`hc`di V`]Wdc`]Wm UbX`]bhYfbUh]cbU``XYj Y`cda Ybh''&amp;`dUfh]W``Ufž`k Y ZcW g`cb`dfcWfggYg`UbX`UWfcfg`]bj c`j YX`]b ]bhYfbUh]cbU``XYj Y`cda Ybhdc`]Wm 5`gc`]b`h\]g`gYa ]bUfž`ghi XYbhg`k ]```VY`X]j ]XYX`]bhc ga U```YUfb]b[`[fci dg`hc`X]gW gg`_Ym]ggi Yg`UbX ei Ygh]cbg`fY`UhYX`hc`h\Y`fYUX]b[g`UbX`h\Y`hcd]WcZ h\Y`gYa ]bUf"H\Y``YWh fYf`k ]``Z]bU`]gY`h\Y`[fci d a Ya VYfg\]d`gc`h\Uh[fci d`X]gW gg]cb`WUb`gfUfh Zfca`k YY_`'`"</pre>
K YY_''.'%) '>i bY '!'%	GYa ]bUf	<u>Aca kYY_</u> K YY_'' 'f%) '>i bYŁ Gi gHJ]bUV'Y'8Yj Y'cda Ybh; cU'g'fG8; g\$

		[fcid']b'th]g'gYa]bUf'tcd]W8
K YY_`(.`&%`>i bY`!`&) >i bY	GYa ]bUf	KYY_`(`f&&`>ibYŁ DiV`]WDUfh]W]dUh]cb`UbX`8YjY`cdaYbhDc`]Wm k∖c`dUfh]W]dUhYgžk∖c`dfcZ]hg3
		Di V`]WdUfhjWjdUhjcb`]g`]a dcffUbhZcf`XYj Y`cd]b[`UbX ]a d`Ya Ybhjb[`XYj Y`cda Ybhdc`]WjYg`Vi h]g`cZhYb ZJ]`]b[`Vch.``cWJ``Wca a i b]hjYg`UbX`h.Y Ybj ]fcba Ybh''`; `cVU``mž'h.Y`ei Yghjcb`cZ\ck.``cWJ` Wca a i b]hjYg`cf[Ub]gY`UbX`k cf_`YZZYWhj Y`mhc XY`]j Yf`gcWjU``UbX`Ybj ]fcba YbhU``VYbYZhg`fYa U]bg Ub`Yb][ a Už'XYgd]hY`a UbmmYUfg`cZXYj Y`cda Ybh fYgYUfW.`UbX`dfUWhjWY''8 cYg`dc`]WmdfcWfgg`dfcj ]XY Ub`cdYb`U`dc`]hjWJ``gdUWf`hc`X]gUXj UbHU[YX`[ fci dg UbX`]bX]j ]Xi U`g`hc`dUfhjWjdUhY3'8 c`[ cj Yfba Ybh U[ YbWjYg`][ bcfY`UbX`Wc!cdha Uf[ ]bU`]gYX`[ fci dg`hc fY]bZcfWf`YI ]ghjb[`]bYei ]hUY`Y`fY`Uhjcbg3`K \UhUfY h,Y`d]hZJ``g`UbX`dchYbhjU`g`cZdi V`]WdUfhjWjdUhcb`hc fYU`]gY`HfUbgZcfa Uhj Y`WXUb[Y`]b`]bhYfbUhjcb'u XYj Y`cda Ybhdc`]WmUbX`dfUWhjWf`3`K ]h.`U`Wf]hjWU X]gW gg]cb`cZWcbWfdh`U``]hYfUh fY`Ug`k Y```Ug Vf]b[]b[`fYU``k cfX`YI dYf]YbVY`Zfca `BYdU`'g Wca a i b]mZcfYgfmž'h.]g`gYa ]bUf`YI d`cfYg`h.YgY ei Ygh]cbg`UbX`a Ubma cfY`k ]h.`U`j ]Yk`hc`gYUfWX`Zcf HfUbgZcfa Uhj Y`dUfhjWjdUhjcb`]b`XYj Y`cda Ybhdc`]Wm
		D@ Gž
		; fcid'g\Uf]b['UbX'X]gW/gg]cbžZc``ck]b['H\Y''.`& %AcXY`ž'H\Uh]g. '`-K\UHUfY'H\Y'H <f99'au]b'uf[iaybhg'czh\y dUdYf'mcif'[fcid'\UjY'fYUX3 &amp;`-K\UHUfY'H\Y'HKC'Wf]h]WU``]ggiYg'mcif'[fcid ]XYbh]Z]YX']b'H\Y'CB9'Vifb]b['eiYgh]cb'Zcf'mcif [fcid']b'H\]g'gYa]bUf'hcd]W8</f99'au]b'uf[iaybhg'czh\y 
K YY_`).`&, `>i bY`!`&`>i `	m GYa ]bUf	K YY_`) f&- `>i bYŁ Dc`]WmUXj cWUWm`: fca `[fUggfcchg`hc`h\Y DUf`]Ua Ybh B cb![cj Yfba YbhC f[Ub]gUh]cbg`fB; C głždc`]Wm UXj cWUhYgžUWhj ]ghg`UbX`h\Y`]_Y`cZhYb`↑[[`Y`U`Z]bY VU`UbWY`VYhk YYb`fYdfYgYbh]b[`h\Y`j ]Yk g`cZh\Y Wca a i b]m`UbX`j i `bYfUV`Y`[fci dg`UbX`gdYU_`hfi h\ hc`dck Yfž'hc`YI YfW]g]b[`X]d`ca UWmUbX`WUi h]cb`k \Yb XYU`]b[`k]h\`]bX]ZYfYbhcf`Yj Yb`\cgh]Y [cj Yfba Ybhg"`H\]g`]g`dUfh]W``Uf`mh\Y`WUgY`Zcf dc`]h]WU``mgYbg]h]j Y`]ggi Yg`gi W\`Ug`\i a Ub`f][\hgž gYI i U``UbX`fYdfcXi Whj Y`\YU'h\ž`UbX`W]a UhY W\Ub[Y"`H\]g`k YY_ž'k Y`k]``YI d`cfY`h\Y`Wca d`YI]h]Yg

		cZdc`]WnUXjcWUWn]b'h\Y'gdUWY'cZ]bhYfbUh]cbU` XYjY`cda Ybhžk]h\'U'dUfh]W``Uf'ZcW'g'cb'B; Cg"
		D@ Gž
		; fcid`g\Uf]b[`UbX`X]gWigg]cbžZc``ck]b[`H\Y`'.`&. %AcXY`žH\Uh]g. '`-K\UhUfY`H\Y`H <f99`au]b`uf[iaybhg`czh\y dUdYf`mcif`[fcid`\UjY`fYUX3 &amp;`-K\UhUfY`H\Y`HKC`Wf]h]WD``]ggiYg`mcif`[fcid ]XYbh]Z]YX`]b`H\Y`dUdYf3 %-K\Uh]g`H\Y`CB9`Vifb]b[`eiYgh]cb`Zcf`mcif [fcid`]b`H\]g`gYa]bUf`hcd]W&amp;</f99`au]b`uf[iaybhg`czh\y 
K YY_`*.`) `>i `m!`- `>i `m	GYa ]bUf	K_YY_`*`ff*`>i`mŁ ? bck `YX[ Y`UbX`8Yj Y`cda YbhDc`]Wn`_k \cgY _bck `YX[ Y`Wci bhg3`
		8 Yj Y`cda Ybhdc`]WjYg`UbX`dfUWjWYg`UfY`cZYb Xf]j Yb`VmHYW\b]WU``_bck`YX[Yži bXYfj U`i ]b[``cWU` UbX`]bX][Ybci g`_bck`YX[Y`UbX`h\Y`_bck`YX[Y`Zfca gcVjU``gWjYbWYg''5g`U`fYgi `hz`]bX][Ybci g`_bck`YX[Y ]g`bchYZYWjj Y`mi hj`]gYX`UbX``cWU``W``hi fY`][bcfYX" =b`h\]g`gYa ]bUfžkY`YI d`cfY`h\Y`dc`]hjWg`cZ _bck`YX[Y`UbX`]XYUg`cZgVjYbWY!dc`]Wn]bhYfZJVWž UbX`h\Yb`X]gW gg`]bg][\hg`Zfca`U`WUgY`ghi Xmk\]V\ XYa cbghfUhY`\ck`UbX`k\m]bX][Ybci g`_bck`YX[Yg UfY`bchYZYWjj Y`mi hj`]gYX`]b`h\Y`bUhi fU``fYgci fW a UbU[Ya Ybhdc`]VjYg`]b`5i ghfU`]U"
		D@ Gž
		; fcid'g\Uf]b['UbX'X]gWigg]cbžZc``ck]b['H\Y''.'&. %AcXY`ZH\Uh]g. '`-K\UhUfY'H\Y'H <f99'au]b'uf[iaybhg'czh\y dUdYf'mcif'[fcid'\UjY'fYUX3 &amp;`-K\UhUfY'H\Y'HK C'Wf]HWD``]ggiYg'mcif'[fcid ]XYbH]ZYX']b'H\Y'dUdYf3 %-K\Uh]g'H\Y'CB9'Vifb]b['eiYgH]cb'Zcf'mcif [fcid']b'H\]g'gYa]bUf'hcd]W3</f99'au]b'uf[iaybhg'czh\y 
K YY_`+.`%&`>i `m!`%*`>i `m	GYa ]bUf	K YY_`+`f%``>i`mL ; YbXYf`>igh]WY`]b`≢bhYfbUh]cbU``8YjY`cdaYbh Dc`]W]Yg.`H\Y`FYX]ghf]Vih]cb'!`FYWc[b]h]cb 8YVUhY
		5W.]Yj]b[`[YbXYf'YeiU`]miUbX'↑gh]WY']b`[`cVU` XYjY`cdaYbh\Ug``cb['VYYb'Wcbg]XYfYX'Ug`j]HJ`'Zcf gigHJ]bUV`Y`XYjY`cdaYbh'' <ckyjyfž'wlu``yb[yg fYaU]b'Zcf'[YbXYf'hc'VY'fYWc[b]gYX'aYUb]b[Z]``miVm dckYfZ]``Xcbcfg'UbX'dc`]WnaU_Yfg"'H\]g'kYY_ž'kY k]``X]gW gg'X]ZZYfYbhbch]cbg`cZ↑gh]WY'UbX'Yei]mž</ckyjyfž'wlu``yb[yg 



		UbX'fYWejYfmž'Vi h]hg'YZYWhjYbYgg'\Ug'VYYb'k]XY'm eiYghjcbYX"'HfUbgdUfYbWhUbX'UWWeibHUV]`]hmcZ Xcbcfg'\UjY'VYYb'ZfYeiYbhmeiYghjcbYX"'H\]g gYa]bUf'YId'cfYgž'k]h\'U'WUgY'ghiXmcZBYdU'g YUfh\eiU_Y'fYWejYfmdfUWhjWYgž'U'fUb[Y'cZ eiYghjcbg'giW\'Ug'k\Uh\iaUb]HUf]Ub'dc`]MJYg' fY'Uhjcbg\]d'hc']bhYfbUhjcbU''XYjY'cdaYbh]g/\ck'Xc [`cVU'ž'ib]jYfgU''\iaUb]HUf]Ub'dc`]MJYg'HfUbg`UHY']bhc `cWU''WebhYI hz'UbX'\ck'UbX'k\mXcYg'cWU''UbX bUhjcbU''dc`]hJWg'YbUV'Yg'X]gUgHYf'WUd]HU`]ga" D@IGž ; fcid'g\Uf]b[''UbX'X]gW gg]cbz'Zc''ck]b[''h\Y''.'&. %A cXY`z'h\Uh]g. '`~K\UhUfY'h\Y'H <f99'au]b'uf[iaybhg'czh\y dUdYf'mcif'[fcid'\UjY'fYUX3 &amp;'~K\UhUfY'h\Y'HKC'Wf]h]WU'`]ggiYg'mcif'[fcid [XYbh]ZJYX']b'h\Y'dUdYf3</f99'au]b'uf[iaybhg'czh\y 
		%-K\Uhi]gʻh\YʻCB9ʻVifb]b[ʻeiYgh]cbʻZcfimcif [fcid`]bʻh\]gʻgYa]bUfihcd]W8
K YY_`%\$.`&`5i[igh!`* 5i[igh	GYa]bUf	K YY_'%\$`fl`5i[Ł K fUdd]b[`Id.`FYZfUa]b[`=bhYfbUh]cbU` 8YjY`cdaYbhDc`]Wm3 H\]g'kYY_'k]``VY'U'fYZYWn[cb'cb'h\Y'hcd]Wg'WcjYfYX

# FYgci fWg

## DfYgWf]VYX F Ygci fWYg

5<sup>\*\*</sup>\*hY\*kYY\_`mfYUX]b[g\*UbX\*gYa]bUf\*g`]XYg\*k]<sup>\*\*\*</sup>VY\*UjU]`UV\*Y\*Zfca\*\*h\Y\*WcifgYfg\*AccX\*Y\*g]hY\*\*\*

KYY\_%f%>ibYŁ```+bhfcXiWhjcb``+bhYfbUhjcbU`8YjY`cdaYbhDc`jWmZcf'U'acfY'>ighKcf`X

- FYei]fYX`FYUX]b[.`A cggYž8"`f&\$\$(\±z"=g`; ccX`Dc`]Wmil b]a d`Ya YbHUV`Y3`FYZYWfjcbg`cb`H\Y 9h\bc[fUd\mcZ5]X`Dc`]WmUbX`DfUWfjWYž6WhWab\_WfS`V5ZS`YWz")f('±`\*'--\*+%"`fH\]g`]g`U`V][ UffjWYžgc`d`YUgY`ZcWig`cb`mcb`dU[Yg`\*(,!\*\*&\z"
- Gi [ [YghYX fYUX]b[. A cggYž8" f&\$% EžH\Y Ubh\fcdc`c[mcZ]bh/fbUh]cbU`XYj Y`cda Ybhž3``gS^ DWh[W aX3`fZdaba'aYkž(&: &&+!&(\*"
- KYY\_&fl '>i bYŁ 'Di V`]WDc`]WmUbX +bhYfbUh]cbU``XYj Y`cda Ybh '<ck 'hc 'g\UdY'dc`]WmW.Ub[ Yg3'
  - FYei]fYX`FYUX]b[.`C`\Už<"`f&\$%`Ł"`~7cibhYfUWjb[`\Y[Yacb]WdckYfg`]b'h\Y`dc`]WhidfcWfgg.` Wf]h]WU``UWjcb`fYgYUfW\cb`BYdU`'g'ZcfYgh[cjYfbUbWf`~~7f]h]WU``Dc`]WhiGh`X]Yg`+flŁ`&(&!&\*&"

D]YfgcbžD"'f&\$\$) Ł"'"H\Y'gh XmcZdc`]WnXYj Y`cda Ybh'"'>ci fbU``cZdc`]Wn\]ghcfm%+f\$%L'' (!) %"

• Gi [ [YghYX`fYUX]b[.`Dc\`ž'7"`f&\$\$, Ł"`": fca `gW]YbWY`hc`dc`]Wnih\fci [ \`hfUbgX]gW]d`]bUfm fYgYUfW\""`Ybj ]f"

.

K YY\_`) f&- `>i bYŁ`

K YY\_'- `f&+`>i`mŁ': cfY][b'5]X']b'<i a Ub]HUf]Ub'Dc`]WmUbX'DfUWf]WY. i bdUW\_]b['X]gUgHYf'dc`]h]Wg3'

- FYei ]fYX FYUX]b[.:G\fYgh\Už?"? "Ž6\UhtUfU]ž6"žC \Už<" UbX:6UfUW\UfmUž5" f&\$% EZ8]gUghYf ↑ gh]WY ]b BYdU f@ YUfh\ei U\_Y fYWcj Yfmž; fWd Sf[a` S^<agd S^aX6 [eSefWdD[e] DWWgUf[a` ž' '.:&\$+-&%\*"
- Gi [ [ YghYX fYUX]b[ . ; i bUk UfXYbUž 5" UbX 6U UbXž >" f&\$%\* Łž HUf[ Yh]b[ '8]gUghYf 5]X ]b Dcgh Hgi bUa ] Gf] @Ub\_Už 6 WhWab\_ W f Ba {Uk DWh[W ž' (f&Ł '%+- !% ) "

DY``]b[žA"'UbX'8]``ž?"'f&\$%\${ž'8]gUghYf'dc`]h]Wg.'h]dd]b['dc]bhg'Zcf'W\Ub[Y']b'h\Y'UXUdhUh]cb'cZ gcWjc!dc`]h]WU``fY[]aYgž'BdaYdNee[`:g\_S`9WaYdSbZkž'(fWz.'&%\'+"

KYY\_`%\$`fl`5i [ŁK fUdd]b[`ld.FYZfUa]b[`ŧbhYfbUh]cbU``8YjY`cdaYbhDc`]Wh3

FYWca a YbXYX FYgci fWYg

, Zmci 'UfY'j Yfm\_YYb'nc'YI d`cfY'Z fh\Yf'cb']bhYfbUh]cbU``XYj Y`cda Ybh'dc`]₩nžmci 'a ][\hik Ubh'nc'W\YW\_'h\Y

? fcba i ``Yfž'9"`5HU``U\ž8; ž; i h]YffYnž'≢; i YffYfcžD`UbX'; YXXUžA "`&\$%&"`9I d`cf]b[`]bX][Ybci g dYfgdYWf] YgʻcZUb`Ybj ]fcba YbH``X]gUghYf. 7 i `h fY`UbX`d`UW'`Ug`]bHYffY`UhYXfYgci fWYgʻZcf`fYa Ya VfUbW cZh\Y`% \*\$`a Y[ U!YUfh\ei U\_Y`]b`7 \]`Yž'⊕hYfbUh]cbU``>ci fbU``cZ8]gUghYf`F]g\_`F YXi Wfjcb`&' f&\$%+Ł &', !&( +"

@ci]gžFD"'&\$\$-"'7Ub'mci `\YUf'ig'bck3'Jc]WYg'Zfca 'h\Y'aUf[]bg.'Ig]b['=bX][Ybcig'AYh\cXc'c[]Yg']b ; Yc[fUd\]WFYgYUfW\ž'3Tad[Y[`S^ba{UkDWeWSdJZ5a`eadf[g\_;`fWd`Sf[a`S^&\$\$+.'%\$!%-"

A cggYž8"`f&\$\$) Ł"`7 i `hjj Uhjb[`8Yj Y`cda Ybh`5b`9h\bc[fUd\mcZ5]X`Dc`]WmUbX`DfUWjWY"`BYk`8Y`\]ž J]gHUUf`Di V`]WUhjcbg"

C \Už<"Ž?\UHf]ž8"žG\fYgh\Už?"'?"/6\UHUfU]ž6"ž6UfU`ž>ž6UgbYhž6"ž; ci HJa ž?"žGi bUa žF ž6Ub1XYž A ž>UbUžGž6i g\`Ynž6ž8\i b[UbUžG"/ `DUi XY`ž8"`f&\$%) Hž'7 Ub`Yj]XYbWY`UbX`jc]Wf`]bZi YbWY`dc`]WfB 7 f]h]WU`fYj]Yk `cZBYdU`YgY`ZcfYghfmgYWcf`dc`]Wf1žGcW]YhmUbX`BUhi fU``FYgci fWfg"`Jc`"&-žbc"' ždd"'') + -" +' "`

C \Už<"ŽG\fYgh\Už?"?"ŽGi VYX]ŽM'ŽG\U\žF"ŽBi VYf[Ž"Ž<Ymc\*ccž6"ž7YXUa cbž9"ŽHUa Ub[ŽG"Ž DUi XY`ž?"ŽF][[Ž>"ŽA U``UŽM'/ `A WA Ubi gžD"`f&\$%+ŁŽ5[f]W``h fU```UbX`i bXYfi h]`]gUh]cb']b'h\Y`\]``g'cZ BYdU`.`=bj Ygh][Uh]b[`gcW]c!Ybj]fcba YbHU``dUh\k Umg`cZW\Ub[Yž<agd`S^aXDgdS^EfgV[Wežj c`"`)' ž dd"%) \*!%+&"

D]YfgcbžD"`f&\$\$) {"`"H\Y`gh XmcZdc`]WnXYj Y`cda Ybh""`>ci fbU``cZdc`]Wn\]ghcfm%+f\$%L`'(!)%"

Dc\`ž7"`f&\$\$, Ł"`~: fca `gWjYbWY`hc`dc`]Whit\fci [\`hfUbgX]gWjd`]bUfmifYgYUfW\"~`Ybj ]fcba YbHU``gWjYbWY'/dc`]Whi%%f%L`(\*!)' "

Fcmž5"'f&\$\$-ŁžK \m=bX]U'WUbbchid`Ub']hg'W[h]Yg.'=bZcfaU`]hmž]bgi f[YbWY'UbX'h\Y']X]ca 'cZ i bVUfb]gUh]cbžB'S``[`YFZWackžjc`", žbc"%ždd"+\*`-`, +"

GYbž'5"'f%---Ł"'8Yj Y`cda YbhUg': fYYXca ž'C I ZcfX'I b]j Yfg]miDfYgg"

G\fYgh\Už?"7 A U\10VYYbžNž&\$%%2f7]j]`gW}YbWYžWcaaib]midUfh]W}dUh]cb1UbXid1Ubb]b[1Zcf1\_bck1YX[Y! VUgYX1XYjY`cdaYbh1UbU`mg]gcZGmXbYmAYhfcdc`]hUb1GhfUhY[mf2=bhYfbUh]cbU``>cifbU``cZ?bck1YX[Y! 6UgYX18YjY`cdaYbh&f(1:(%&--`('&"

G\fYgh\Už?""?"'f&\$%&ŁžfHckUfXg'9bj]fcbaYbHU`'9ei]hm]b'BYdU`YgY'7caaib]hm:cfYghfnfä`=b`:fYXYf]W\_'8" ;cfXcb7';fY[cfm?"':fYY`UbX'fYX"Łž=bhYfbUh]cbU``9bj]fcbaYbHU``>igh]WY.'7cadYh]b['7`U]ag'UbX DYfgdYWf]jYgž=@A'DiV`]WUh]cbgž<YfhZcfXg\]fYžI?ždd"'-+-%%%"

G\fYgh\Už?"'?"'f&\$%\* Łż<br/>6 [W\_ \_ Se aX<gef[UW 5 a ^WUf[hWSUf[a` S` V 7 cg[fk [` @WbS^e 5 a<br/>\_ g` [fk 8 adWefckł 5 Xfc]hDi V`]g\YfgžBYk '8 Y`\]ż<br/>  $\Rightarrow$ X]U"

G\fYgh\Už?""?""UbX`A WA Ubi gžD"f&\$\$, ŁžH\Y`dc`]h]Wg`cZWca a i b]hmidUfh]W]dUh]cb`]b`bUhi fU`fYgci fW a UbU[Ya Ybhž`Yggcbg`Zfca `Wca a i b]hmiZcfYghfmi]b`BYdU`ž5i ghfU`]Ub`: cfYghfmi+%f&L`%)!%(\*"

G\fYgh\Už?"?"ZC^UZ<"ZZ'AWAUbigZD"f&\$%) ŁZ'I fVUb]nUh]cbzgcW]U`]bWig]cb'UbX'W]aUhY'W\Ub[Y.5b]bfcXiWf]cb'Z'=b'G\fYgh\UžYh'U`"f&\$%) ŁZ=bWig]jY'I fVUb]nUh]cb.FYh\]b\_]b['DUfh]W]dUh]cbZD`Ubb]b['UbX Dc`]WhZFcihYX[YZ@cbXcb'UbX'BYk'Ncf\_Z'dd"%-%&"

GbYXXcbž7"ž<ckUff\žF"UbXBcf[UUfXžF"f&\$\$\*½GigHJbUVYXYjY`cdaYbh]bU'dcgh6fibXhUbX kcfXž9Vc`c[]VU``9Vcbca]Vg`)+.`&)'-&\*, " H\caUg`5žAc\Ub`; "``f&\$\$+Ł"``FYgYUfW\`g\_]``g`Zcf`Dc`]WmUbX`8YjY`cdaYbh'``<ck`hc`ZjbX`cihZJghž @cbXcbž`GU[Y"

K YggY`]b\_ž5"ž?"'G"'6i WkUbUbž'M'; Ycf[]UXci 'UbX'9"'Hi fb\ci hf&\$% 'z"''HYVkb]WU`'\_bck `YX[Yž X]gW fg]j Y`gdUWfg'UbX'dc`]h]Wg'UhI\Y`gW}YbWf-dc`]Wm]bhYfZUWf"''9bj]fcba YbHJ`'GW]YbWf / 'Dc`]Wm' \$.'%-"

### 7ci fgY'9j U`i Uh]cb'UbX'8Yj Y`cda Ybh

Ghi XYbhZYYXVUW\_`]g`[Uh\YfYX'dYf]cX]WU``mi g]b[žUa cb[`ch\Yf`a YUbgžI BGK 'g`a m9I dYf]YbW'dfcW'gg" =DZcfa U``ZYYXVUW\_`UbX`WUgg![YbYfUhYX`ZYYXVUW\_`UfY`]a dcftUbh'`5`Vf]YZgi fj Ymk ]```VY`WcbXi WhYX`Ufci bX h\Y`a ]XX`Y`cZh\Y`gYa YghYf`hc`]XYbh]ZmUfYUg`cZghi XYbh]ggi Yg"`5bU`mg]g`cZZYYXVUW\_`k]```]bZcfa `h\Y fYUgcbUV`Y`UX^`gha YbhcZWci fgY`WcbhYbhUbX`XY`]j Yfmk \YfY`dcgg]V`Y"`Ghi XYbhZYYXVUW\_`]g`tU\_Yb gYf]ci g`mž'UbX`Wcbh]bi U``]a dfcj Ya Ybhg`UfY`a UXY`hc`h\Y`Wci fgY`VUgYX`]b`dUfhcb`gi W.`ZYYXVUW\_"`7 \Ub[Yg hc`h\Y`Wci fgY`k]``VY`]b!fcXi WfX`hc`gi VgYei YbhWc\cfhg`cZghi XYbhg`tU\_]b[`f\Y`Wci fgY''

7 cbgłfi Wij Y ZYYXVUW\_`]g'[ fYUhmUddfYWJUHYX"'K Y'U]a 'hc'WcbhJbi Y'hc']a dfcj Y UbX'i dXUHY'h\Y'Wci fgY/d`Um gca Y'dUfhi]b`\Y`d]b[ 'i g'hc'Xc'gc"'G\UfY'nci f'ZYXVUW\_ž'nci f'fYgci fWfgž'nci f']XYUg"'D`UmU'dUfhi]b ZUWj]HUHJb[ 'h\Y'YUfb]b[ 'cZU```a Ya VYfg'cZh\Y'WUgg"

# Gi Va ]gg]cbcZ5ggYgga YbhHUg\_g

# Hi fb]h]b Gi Va ]gg]cb

Zmci YbWci bhYf'U'dfcV'Ya 'k \Yb'UhYa dhjb[ 'hc'gi Va ]hmci f'Ugg][ ba Ybhih\fci [ \ 'Hi fb]hjbž'd'YUgY hY'Yd\cbY'9I hYfbU'`Gi ddcfhicb'-', ) '' ' '%cf'Ya U]`'h\Ya 'cb'YI hYfbU'hY'hgi ddcfh4 i bgk "YXi "Ui '"'Gi ddcfh \ci fg'UfY', .\$\$Ua '-'%\$.\$\$da 'cb'k YY\_XUmg'UbX'-.\$\$Ua '-') .\$\$da 'cb'k YY\_YbXg'fl \*) 'XUmg'U'mYUfŁ'''Zmci UfY'i bUV'Y'hc'gi Va ]hmci f'Ugg][ ba YbhXi Y'hc'U'ZJi `hk ]h\'Hi fb]hjb'mci 'a UmUdd`mZcf'Ub'YI hYbg]cbž'Vi hmci a i ghfYhU]b'mci f'hjW\_Yhbi a VYf'Zfca '9I hYfbU'`Gi ddcfhfU'cb[ 'k ]h\'Ubmch\Yf'fY'Yj UbhXcW a YbhgŁ'hc ]bWi XY'Ug'Yj ]XYbWY hc'gi ddcfhimci f'YI hYbg]cb'Udd`]WUh]cb'''Zmci 'Ya U]`'9I hYfbU'`Gi ddcfhimci 'k ]`` Ui hca UhjWU'`mfYWY]j Y'U'hjW\_Yhbi a VYfž'Vi h']Zmci 'hY`Yd\cbY'mci 'k ]``bYYX'hc'gdYW]ZJWU``mUg\_'Zcf'cbY" Hi fb]hjb'U`gc'dfcj ]XYg'i dXUhYg'cb'h\Y]f'gmghYa 'ghUh'g'cb'Hk]hYf"

; YbYfU``mž'UggYgga YbhiHUg\_g`a i ghVY`gi Va ]HYX`Y`YWfcb]WU``mj ]U`Y]H\Yf`Hi fb]h]b`cf`U`A ccX`Y Ugg][ ba Ybh'`=b`]bgHUbWfg`k \YfY`H\]g`]g`bchdcgg]V`Yž`]hk ]```VY`gHUHYX`cb`mci f`Wci fgY**'**g`A ccX`Y`g]HY`k ]H\ U`HYfbUh]j Y`gi Va ]gg]cb`XYHU]`g"

: cf`]bZcfa Uh]cb`cb`\ck 'hc`gi Va ]hUgg][ ba Ybhg`cb`]bY`j ]U`A ccX`Y.`\hhdg.##gh XYbh'i bgk "YXi "Ui #\ck! gi Va ]hUgg][ ba Ybha ccX`Y

5WUXYa]W<cbYghmUbX^D`U[]Uf]ga

•

# 5₩UXYa]₩₽ZcfaUh]cb

: cf<sup>\*</sup>YggYbhJU<sup>\*\*</sup>gh XYbh<sup>\*</sup>]bZcfa UhJcb<sup>\*</sup>fY<sup>\*</sup>UhJb[<sup>\*\*</sup>hc.

- fYei YghgʻZcfʻYl HYbg]cb/
- `UHY 'gi Va ]gg]cbg [ i ]XY `]bYg/
- fYj ]Yk cZa Uf\_g/
- •