8	**(a)**		Quota sampling	**B1** **[1]**	**1.2**			
8	**(b)**		9	**B1** **[1]**	**1.1**	from 5×1.8		
8	**(c)**		Systematic: select every 24th number on the list start randomly between $n = 1$ and $n \geq 184$ and stop when 200 have been selected (if $n > 184$, must cycle through list) Simple random sampling: assign each item in the list a unique number (eg from 1 to 4960) generate random numbers until a sample of 200 has been selected **soi**	**M1** **A1** **E1** **E1** **[4]**	**2.4** **1.1** **2.4** **1.1**	*alternatively* select every 25th number on the list start randomly between $n = 1$ and $n \geq 25$, and cycle through the list again, stopping when 200 have been selected *alternatively* allow any process where each member of the population has an equal chance of being selected allow any process where each possible sample has an equal chance of being selected	*alternatively* select every 24.8th value on list, rounding as appropriate start randomly with any value on list. Cycle through the list repeatedly until 200 items have been selected	

Question			Answer	Marks	AOs		Guidance
8	(d)		as the size of the sample increases, the shape of the distribution appears more and more "Normal" **oe**	**B1** **[1]**	**2.4**	must refer to shape **and** closer to Normal shape for larger sample	
8	(e)		use of N(60.0515, 6.5783^2) to find P($X > 65$) awrt 0.23 4960 × their 0.226 1121 or 1120 or 1119	**M1** **A1** **M1** **A1** **[4]**	**3.3** **3.4** **3.1b** **3.5a**	condone use of 6.5717^2 or parameters rounded to 3 sf	**M0** if continuity correction used or eg P($X > 64$) found
8	(f)		eg there may be seasonal fluctuations such as teachers retiring in August	**B1** **[1]**	**3.5b**	allow any sensible reason in context	do not allow eg mean and sd may be different