



Q	Answer	Marks
1	a) all 2000 loaves made that day b) a numbered list of the 2000 loaves, e.g. by batch and position in the oven c) testing destroys the loaf, so a census would leave nothing to sell	3
2	Number the members 1 to 480, use a random number generator to pick 30 different numbers (ignoring repeats), and ask those members.	3
3	a) systematic sampling b) opportunity (convenience) sampling c) quota sampling	3
4	a) Year 7: 13, Year 8: 12, Year 9: 12, Year 10: 12, Year 11: 11 b) number the 168 Year 9 students and pick 12 at random using a random number generator	4
5	a) $k = 600 \div 40 = 15$; pick a random start from 1 to 15, then every 15th invoice after it b) quick and simple to carry out, and the sample is spread evenly through the invoices c) once the start is chosen the rest are fixed, so not every set of 40 invoices is equally likely to be chosen	4
6	a) quota sampling b) advantage: quick and cheap with no sampling frame needed; disadvantage: not random, so it can be biased (e.g. only people in the centre at that time) c) a sampling frame: a list of the whole population split into the two age groups, so people can be chosen at random from each	4
7	a) millimetres (mm) b) trace: less than 0.05 mm of rain fell c) replace tr with 0 (or a value such as 0.025 mm) and leave out the n/a days, since those data are not available	4
8	a) Daily Mean Total Cloud Cover, in oktas b) Daily Mean Pressure, in hectopascals (hPa)	4
9	a) Perth is in the southern hemisphere, so June and July are winter there, not summer b) the large data set only covers May to October, so there is no Perth summer data; he should compare Hurn with a northern hemisphere station such as Beijing or Jacksonville in June and July	4

10	a) opportunity (convenience) sampling b) 5.4 hours c) it is lower than 5.8, so the first 8 days underestimate the mean; days in a row often share the same weather, so the sample is not representative d) number the days 1 to 31 and use a random number generator to pick 8 different days	5
11	a) knots b) Camborne 7, Heathrow 7, Hurn 6, Leeming 6, Leuchars 6 c) number the 160 Hurn days and pick 6 at random with a random number generator d) wind speeds differ between stations, so the sample should represent every station in proportion	6
12	a) only people near the town hall are reached, and on a Monday morning people at work or school are missed (also people choose whether to take part) b) 60 c) it uses random selection from a full sampling frame and represents each ward in proportion, so bias is reduced d) e.g. some chosen people may not reply, or the register may be out of date	6

Full worked solutions, written out by hand, are on the solutions sheet for this topic.