Unit 1 Foundation Tier: Statistics and Probability

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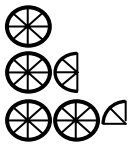
Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
1.	(a)	Gym 𝍸 II 7 Tennis IIII 4 Squash 𝍸 5 Swimming IIII 4	7, 4, 5, 4	2	B2 for all frequencies correct (B1 for 2 frequencies or 2 tallies correct or one tally with its frequency correct)
	(b)		5	1	B1 for 5 or '5' ft from table
	(c)		Gym	1	B1 for gym or 'gym' ft from table
					Total for Question: 4 marks
2. **FE**		e.g. 0903 – 25 minutes = 0838 0903 0953 0953 + 3 hours = 1253 1300 1355 1355 + 25 minutes = 1420	e.g. 0838 0903 0953 1300 1355 1420	5	B1 for a correct time 25 minutes (or more) before the train departs e.g. 0838, 0938 … or earlier B1 for a correct departure time, e.g. 0903, 1003… with the associated correct arrival time 0953, 1053… B1 for a correct departure time (3 hours after arrival) e.g. 1300, 1400… B1 for a correct arrival time corresponding to the departure time, e.g. 1355, 1455… B1 for a correct arrival time at home, e.g. 1420, 1520…
					Total for Question: 5 marks
3.			 Key represents 8 bikes	3	B2 for all 3 days correct (B1 for at least one day correct, i.e. one circle for Thursday or one and a half circles or ft 1 $\frac{1}{2}$ × 'Thursday' for Friday or two and a quarter circles or ft 2 $\frac{1}{4}$ × 'Thursday' for Saturday) B1 for a correct key
					Total for Question: 3 marks

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Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
4.	(a)		Cross at 1	1	B1 for cross at 1 (allow ±2 mm tolerance)
	(b)		Cross at $\frac{1}{4}$	1	B1 for cross at $\frac{1}{4}$ (allow ±5 mm tolerance)
	(c)(i)		$\frac{1}{4}$	2	B1 for $\frac{1}{4}$ oe fraction
	(ii)		35		B1 for 35 or 35.0
	(d)		$1 - s$	1	B1 cao
					Total for Question: 5 marks

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Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
5. **QWC (i)**			Diagram or chart	4	B1 for a key or suitable labels to identify boys and girls B1 for 5 correct animal labels B1 for a diagram or chart (combined or separate) set up for comparison, e.g. dual bar chart, back-to-back stem and leaf diagrams, pie charts, pictograms, vertical (stick) diagrams, etc C1 fully correct diagram or chart **QWC: Fully correct diagram or chart and all labelling is correct and clear**
					Total for Question: 4 marks
6.	(a)		(A,1), (A,2), (A,3), (B,1), (B,2), (B,3), (C,1), (C,2), (C,3), (D,1), (D,2), (D,3)	2	B2 for listing all 12 outcomes (B1 for listing 6 outcomes, ignore repeats)
	(b)		$\frac{1}{12}$	1	B1 ft for $\frac{1}{\text{'12'}}$
					Total for Question: 3 marks
7. **QWC (i, ii, iii)** **FE**		2(215) + 3(128) = 814 2(211) + 3(134) = 824 2(223) + 3(119) = 803	Easy Plane £803	6	M1 for 2 × Adult + 3 × Child M1 for using correct Adult and Child, i.e. (215, 128) or (211, 134) or (223, 119) A2 for 814, 824 and 803 (A1 for one or two correct or for a correct 2×'Adult' + 3×'Child') B1 for correct units, i.e. £ or pounds C1 for Easy Plane identified **QWC: Decision must be stated and total costs must be attributable**
					Total for Question: 6 marks
8.	(a)	3 × 6	18	2	M1 for 360 ÷ 60 or 6 seen or 1 gold = 20 A1 cao
	(b)		No and appropriate explanation	1	C1 for 'No' and correct explanation, e.g. the pie charts only show that the proportions are the same **OR** explains that she could be correct if the total number of medals is the same in each year **OR** explains that we don't know if she is correct because the total number of medals in 2004 is not known.
					Total for Question: 3 marks

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Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
9. **QWC (i, iii)**		12, 20, 7, 28, 28, 35, 37 15, 18, 25, 27, 29, 31, 35, 35, 40	Compares 1.medians/ means 2.ranges	6	B2 for median (boys) = 28 and median (girls)= 29 OR mean (boys) = 26.7 or better and mean (girls) = 28.3 or better (B1 for one correct median/mean) B2 for range (boys) = 25 and range (girls) = 25 (B1 for one correct range) **OR** B2 for fully correct diagram/chart to compare, e.g. back-to-back stem and leaf diagram, dual bar chart, vertical (stick) graphs, etc (B1 for diagram chart with one error in presentation) C1 for median (girls) > median (boys) oe **or** mean (girls) > mean (boys) oe **or** for range (boys) = range (girls) oe C1 for comments relating to all working (ie range/mean/median/charts dep on B4) **QWC: Decisions should be justified, and calculations attributable** SC If no marks scored B1 for a correct comparison
					Total for Question: 6 marks
10.	(a)		Question + response boxes	2	B2 for a suitable question with at least 3 non-overlapping response boxes (must include a time period) (B1 for a suitable question with time period or non-overlapping response boxes)
	(b)		Reason	1	B1 for biased or all the students the same age or students (may) eat more sweets, etc
					Total for Question: 3 marks
11. **QWC (ii, iii)** **FE**		2.39 × 12 + 4.5 3.29/100 × 1000	33.18 32.90	5	M1 for '2.39 × 12' + 4.5 or diagram showing 2.39, 4.78, 7.17, …, 28.68 oe (condone one error) A1 cao M1 for 3.29/100 × 1000 oe A1 cao C1 for Investment A identified **QWC**: **Decision must be stated, with calculations clearly attributable**
					Total for Question: 5 marks

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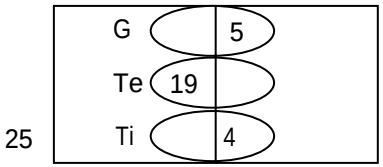
Question		Working	Answer	Mark	Additional Guidance
12.		e.g. <table><tr><td></td><td>Gu..</td><td>Te.</td><td>Ti.</td><td>Tot.</td></tr><tr><td>Male</td><td></td><td>19</td><td></td><td>25</td></tr><tr><td>Female</td><td>5</td><td></td><td>4</td><td></td></tr><tr><td></td><td></td><td></td><td>7</td><td>50</td></tr></table> Male Female  	35	4	M1 for a two-way table or Venn diagram. Telegraph, Times, Guardian and male, female labelled A1 for 4, 5, 7, 19 and 25 M1 for attempt to find 16 (condone one error) A1 cao [NB Two-way table/Venn diagram need not contain all numbers]
					Total for Question: 4 marks
13.	(a)(i)		Line of best fit	3	B1 for line drawn between (190, 80), (190, 95) and (210, 105), (210, 120) M1 for diff. *y* / diff. *x*
	(ii)		1.25		A1 for 0.5 — 2 or ft their line of best fit
	(b)		20%	2	M1 for a horizontal line at 99 and a vertical line at 200 or 2 seen A1 for 20% or $\frac{2}{10}$ or 0.2 oe
					Total for Question: 5 marks

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Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
14.		Scone 30g:10g:5g	40	4	M1 for 45÷(6+2+1) A1 for SRF = 30, B = 10, C = 5 M1 for 200÷5 or 500÷10 or 2000÷30 A1 cao **OR** M1 for 6×200 or 2×200 or 1×200 or 6×500 or 2×500 or 1×500 or 6×2000 or 2×2000 or 1×2000 A1 for SRF, B, C = 1200, 400, 200 or 1500, 500, 250 or 2000, 666.7, 33.3 M1 for (1200 + 400 + 200)/45 A1 cao.
FE		200 ÷ 5 = 40 500 ÷ 10 = 50 2000 ÷ 30 = 66.7			
					Total for Question: 4 marks