General Certificate of Secondary Education

Statistics

Foundation Tier

Specimen Mark Scheme

The following abbreviations are used on the mark scheme:

M	Method marks awarded for a correct method.
A	Accuracy marks awarded when following on from a correct method. It is not necessary always to see the method. This can be implied.
B	Marks awarded independent of method.
M dep	A method mark which is dependent on a previous method mark being awarded.
ft	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
SC	Special Case. Marks awarded for a common misinterpretation which has some mathematical worth.
oe	Or equivalent.
eeoo	Each error or omission.

Q	Answer	Mark	Comments
1 (a)	23, 28, 18, 6, 3, 2	B2	B1 for 4 correct 0 for cumulative frequencies
(b)	23 + 28 + 18 + 6 + 3 + 2 = 80	M1 A1	For addition ft
(c)	fx Σ fx = 184	M1 M1 A1	At least 3 from 23,56,54,24,15 and 12 Attempt to add at least 3 fx values cao
(d)	184 / 80 = 2.3	M1 A1	Their Σ fx / their total cao
(e)(i)	2	B1	
(e)(ii)	More customers bought 2 items than any other number of items	E1	oe
(2)(a)	Green	B1	Not 20 on answer line
(b)	20 × 10 = 200	M1 A1	Some attempt at counting symbols × 10 cao
(c)	50 – 45 = 5	M1 A1	50,45 or 5,4.5 seen as pair M1 cao
(d)(i)	G = 1/10	B1	G in the range >1/20 and < 3/20
(d)(ii)	B = 3/10	B1	B in the range >5/20 and < 7/20
(e)(i)	0	B1	
(ii)	1 – ¼ = 0.75	M1 A1	Or counting ¾ or 15/20

Q	Answer	Mark	Comments
3(a)(i)	10	B1	
(ii)	194	B1	SC1: 125
(iii)	139 + 194 + …	M1	
	= 413	A1	
(b)	There are 15 households that have 3 adults and 1 child	B1	
(c)	7	B2	SC2: 3 adults + 4 children
4	Chooses 5 pairs of two digits numbers from random numbers	M1	
	Copes with 39 (too big)	B1	
	Copes with repeated 23	B1	
	Matches and lists the 5 names correctly	B1	23 – Shah 20 – Patel 09 – Fernandez 18 – Morgan 14 - Imeson
5(a)	Inconsistent x axis or x axis not labelled	B1	Or acceptable alternative e.g. 3D, difficult to read off – not just inaccurate
(b)	12 %	B1	+1% tolerance
(c)	1981	B1	
(d)	Census – full coverage of population Sample – part coverage	B1	Must refer to both census and sample

Q	Answer	Mark	Comments
6(a)(i)	Choices are given	B1	oe
(ii)	Groups can be given as choices so people are not revealing their age	B1	oe Easier to analyse
(b)	Collect them himself	B1	Telephone / internet oe – rewards, etc
(c)	No time frame given in question	B1	
	No response boxes	B1	oe
7(a)	24 – (12 + 3 + 5)	M1	
	4	A1	
(b)	Wear neither earrings nor glasses	B1	
(c)(i)	$\frac{5}{24}$	B1	oe 2dp or better
(ii)	$\frac{3}{24}$	B1	oe eg $\frac{1}{8}$ 2dp or better
(d)	Numerator 3	B1	oe 2 dp or better Not as a result of cancelling Values must be part of a fraction Accept 0.37 for B2
	Denominator 8	B1	

Q	Answer	Mark	Comments
8(a)	Observation	B1	Accept observational experiment
(b)	The effectiveness / discipline of the teacher	B1	Any 2 sensible suggestions oe e.g the weather (eg windy day)
	The type of children in the class	B1	
(c)(i)	Different observers see the same thing but record it differently	B1	
(ii)	Give the observers clear guidelines about how to record what they see	B1	oe eg well trained
	Observers to see both types of classroom set up and record observations	B1	oe
9(a)	55, 68, 87, 96, 100	B2	- 1 each error or omission
(b)	Horizontal plots Vertical plots Joined by line	B1 B1 B1	B1 ft on their c.f. Marks dependant on a cumulative function
(c)(i)	19	B1	ft from their cf polygon
(ii)	13	B1	± ½ square follow through on polygon
(iii)	34	B1	
(d)	54	B1	
(e)(i)	Plot of Median Quartiles Limits Box	B1 B1 B1 B1	ft ft
(ii)	Smaller range or I.Q.R Higher median	B1 B1	 Younger people travel early B1

Q	Answer	Mark	Comments
10(a)	1999, 2001	B2	-1 for each error or omission
(b)	6000 × 1.15 = £6900	M1 A1	oe
(c)	2000	B1	
11(a)	Fewer pupils stay for school dinners this year than last.	B1	oe
(b)	Response rates, testing questionnaire etc	B1	Or equivalent – time constraints, results, but not to imply fixing
(c)(i)	Missing part of population e.g. absentees, those that don't go to canteen	B1	Or equivalent
(ii)	Excludes those with non S surnames	B1	Or equivalent - random selection of initial letter, siblings, specific set of people
(d)(i)	Discrete	B1	
(ii)	Continuous	B1	

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