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ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Secondary Education

Mathematics 4302 (Two Tier)
Specification B

Module 1 Foundation Tier

Mark Scheme

2006 examination - November series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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.

Module 1 Foundation Tier

Note: Probability - Accept fraction, decimal or percentage. Do not accept ratio.
1 out of 3 or 1 in 3 penalise once on whole paper.

Q	Answers	Mark	Comments
1(a)	Both frequencies correct 14 and 7	B1	
	Correct tallies for 9	B1	Accept 5 bar gate or bunch of 5
1(b)	Linear scale on vertical axis starting from zero	B1	Condone 0 missing at origin
	3 bars of correct heights $\pm \frac{1}{2}$ square Bars of reasonably equal width with or without gaps of any size	B1	Condone linear scale not starting from zero Ignore labels at this stage
	Correct labels	B1	
1(c)	Sunny	B1	
1(d)	Sunny was the most common type of weather in Sept and April	B1	eg, there are more sunny days each month
2	Mode = 5	B1	
	$\frac{24}{4}$	M1	
	Mean = 6	A1	oe valid explanation eg, mean > 5 because all the numbers are ≥ 5
3(a)	83	B1	
3(b)	$\frac{20+1}{2}$ = 10.5th value	M1	Locating 65 **and** 67 or locating 5 **and** 7 or 5/7 on diagram
	66	A1	

Q	Answers	Mark	Comments
4(a)	0.25 + 0.15	M1	
	0.4	A1	
4(b)	1 – (0.5 + 0.25 + 0.15)	M1	or 1 – (0.5 + "(a)")
	0.1	A1ft	ft probability in (a); answer must be a probability Mark (b) as seen If (b) blank can mark 0.1 in table
5(a)	2000	B1	
5(b)	52(%)	B2	152 B1 51 SC1 151 B0
6	EVENS IMPOSSIBLE UNLIKELY CERTAIN	B3	B1 for each
7(a)	5	B1	
7(b)	11	B1	
7(c)	14 – 6	M1	6 – 14 alone M0
	8	A1	4 SC1

Q	Answers	Mark	Comments
8(a)	Friday	B1	
8(b)	90º ± 2º	B1	
8(c)	$\frac{their\ (b)}{360}$	B1ft	oe
8(d)	$\frac{320}{720} \times 360$	M1	Any correct method can be implied from pie chart
	160º or 125º or 75º	A1	Any correct angle can be implied from pie chart
	All 3 sectors correct	A1	±2º
	Labels	B1	T, R, C in correct sectors according to size
8(e)	You cannot answer negatively	B1	Too restrictive, suggestive Leading / biased Not enough categories Overlapping
9(a)	Sensible "straight" line	B1	On or below (40, 2.5) and on or between (50, 3.7) and (52, 3.5) and also on or between (56, 4.5) and (57, 4.2) line 40-58 length
9(b)	Approximately 4.2 kg	B1ft	Must follow their "straight" line with positive gradient (wherever it is) 48 – 55 area
10(a)	Any correct fraction seen in (a)	M1	$\frac{x}{20}$ $\frac{3}{10}$ $\frac{1}{10}$
	All six correct	A1	$\frac{3}{20}$ $\frac{6}{20}$ $\frac{3}{20}$ $\frac{2}{20}$ $\frac{3}{20}$ $\frac{3}{20}$
10(b)	2, because there are a lot more 2s than any other number	B1	oe