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ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Secondary Education

Mathematics 4307

Specification B

Module 1 Tier H 43051H

Mark Scheme

2007 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.

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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 HIGHER TIER 43051H

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

1	Correct ordered diagram 10 | 0 9 11 | 1 8 8 12 | 1 3 8 9 13 | 2 5 7 14 | 4 6	B2	B1 for unordered or 3 ordered lines correct
	Key completed using any 3 digit number ≥100	B1	

2(a)	Q: The question has no time frame	B1	
	R: No box for none or no box for more than 6	B1	
2(b)	Group 1: Only asking boys	B1	
	Group 2: Only asking one year group/age	B1	

3(a)(i)	$\frac{7}{25}$ or 0.28 or $\frac{112}{400}$	B1	oe
3(a)(ii)	$\frac{19}{100}$ or 0.19 or $\frac{76}{400}$	B1	oe
3(b)	Josh because he carried out more trials	B1	

4(a)	$\frac{37+62+39}{3}$ or $\frac{138}{3}$	M1	or $47 + \frac{39-42}{3}$ or $47 - 1$
	46	A1	
4(b)	$\frac{62+39+x}{3} = 51$ or $62 + 39 + x = 153$	M1	Setting up equation or sight of 153 and 101
	$153 - (62 + 39)$ or $153 - 101$	M1	
	52	A1	SC1 for last 3 moving averages used leading to ans of 48 T & I with correct answer = M2A1

5(a)	$\frac{7}{28} \times 10$ (+50)	M1	
	52.5	A1	Accept 52 or 53
5(b)	Any correct method for frequency density seen eg 18 ÷ 20	M1	May be implied from correct bar on histogram with correct fd scale
	4 or 5 frequency densities correct 0.9, 2.8, 3.6, 0.75, 0.1	A1	May be implied from histogram
	Histogram drawn accurately	A1	$\pm \frac{1}{2}$ square
	If incorrect scale - M1A1A0 for 5 bars correct M1A0A0 for 4 bars correct		
5(c)	(20 × 1.1) or (10 × 3.1) or 22 or 31 or 53	M1	Alternative method: Using differences in heights of bars 20 × 0.2 or 10 × 0.3
	53 – (18 + 28)	M1 dep	20 × 0.2 + 10 × 0.3 or 4 + 3
	7	A1	

6	1 – (0.20 + 0.15 + 0.35)	M1	
	their 0.3 × 20	M1 dep	
	6	A1	

7(a)	32 added for girls - bus	B1	
	14 added for boys - car	B1	
	100 – (28 + "32" + 1)	M1	or 200 – (42 + "14" + 28 + 38 + "32" + 6 + 1)
	39	A1	
7(b)	$\frac{70}{200} \times 1000$ or 70 × 5	M1	or 1000 – 650
	350	A1	

8(a)	1 to 3	B1	
8(b)	(53 × "2") + (30 × "5") + (11 × "8") + (6 × "11") or 106 + 150 + 88 + 66	M1	At least 3 brackets "correct". All four added Accept use of any midpoint within or on class boundary
	their 410 ÷ 100	M1 dep	
	4.1	A1	

9(a)	Median and quartiles marked in correct place	B1	$\pm\frac{1}{2}$ square
	Box formed and whiskers correctly joined	B1	$\pm\frac{1}{2}$ square
9(b)	Comment about average (in) **context**	B1	eg (on average) the students were quicker on the 2nd run
	Comment about spread being the same	B1	eg The range/IQR is the same. Accept: The quickest time and slowest time both decreased by 2 mins

10(a)	Sight of 0.1 and 0.4	M1	
	0.1×0.4	M1 dep	oe
	0.04	A1	oe
10(b)	0.6×0.8 or 0.4×0.7	M1	
	0.48 + 0.28	M1 dep	Adding correct products
	0.76	A1	