GCSE 2005
March Series

ASSESSMENT and QUALIFICATIONS ALLIANCE

Mark Scheme

Mathematics B (3302)
Module 1 Tier I

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.

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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(a)	(£)15	B1	
(b)	2001 and 2002	B1	Accept 01 and 02 but not 1 and 2 not values in £'s

2(a)	Correct key	B1	Using any 2 digit value
	9 4 5 8 9 2 3 4 4 8 0 2 6 1	B2	Fully correct and ordered B1 for all correct values unordered or 4 rows fully correct and ordered
(b)	32	B1	

3(a)	0.6	B1	
(b)	£50	B1	or 5000(p)
	0.2×100 or 20	M1	
	Profit £30	A1	or 3000p

4(a)	Attempt at Σfx $(5 \times 16) + (15 \times 10) + (25 \times 11) + (35 \times 8) + (45 \times 5)$	M1	'f' × their midpoint within the range At least three products
	their $\frac{1010}{50}$	M1 dep	Must be from at least 3 correct midpoints
	20.2	A1	Accept 20 from correct method seen
(b)	Indication of 25th or 25.5th value	M1	
	$10< t \leq 20$	A1	Accept 10-20

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5(a)	There are four quarters in a year	B1	
(b)	$\frac{(24+52+83+37)}{4}$ or $\frac{196}{4}$	B1	
(c)	$\frac{(52+83+37+x)}{4} = 51$	M1	
	$52 + 83 + 37 + x = 204$	M1	or $172 + x = 204$ or $x = 204 - 172$
	32	A1	
			Note $\frac{52+83+37}{4} = 43$ $51 - 43 = 8$ SC1

6(a)	Any 2 rows or columns correct	M1	
	Table fully correct	A1	6 7 8 9 7 8 9 10 8 9 10 11 9 10 11 12
(b)	i) $\frac{1}{16}$	B1 ft	ft from fully completed table Allow 0 or $\frac{0}{16}$ if no 6's
	ii) Total of 6 or numerator 6	M1 ft	ft from fully completed table but <u>not</u> for zero
	$\frac{6}{16}$	A1 ft	oe
(c)	$\frac{4}{16} \times 100$ or $\frac{1}{4} \times 100$ or $100 \div 4$	M1	ft from fully completed table if at least one '9'
	25	A1	

7	Suitable scales for both axes	B1	Frequency scale from 0 Insurance scale linear from their starting point
	Points plotted at correct heights	B1	Must be from linear frequency scale $\pm \frac{1}{2}$ sq
	Histogram blocks correctly located or frequency polygon plots at midpoints and joined	B1	

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8	$\frac{2}{5} \times 1000$ or 400 (girls) or $\frac{3}{5} \times 1000$ or 600 (boys)	M1	Alternative method $\frac{2}{5} \times \frac{1}{10}$ or $\frac{2}{50}$ OR $\frac{1}{6} \times \frac{3}{5}$ or $\frac{3}{30}$
	$\frac{1}{10} \times 400$ or 40 girls	M1	$\frac{2}{50} \times 1000$ or 40 girls
	$\frac{1}{6} \times 600$ or 100 boys	M1	$\frac{3}{30} \times 1000$ or 100 boys
	140 students	A1	

9(a)	46	B1	
(b)	Plotted at upper bounds	B1	
	Heights all correct	B1	$\pm \frac{1}{2}$ sq
	Points joined by smooth curve or straight line polygon	B1	Condone not joined to 0 Must be an increasing function
(c)	170-150 If mr scale for 170 clear evidence must be seen of reading at correct place (eg lines or mark)	M1	
	20	A1 ft	Follow through from an increasing curve or polygon