GCSE 2004 November Series



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.

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The following abbreviations are used on the mark scheme:

| Μ | Method marks awarded for a correct method. | | |
|-------|---|--|--|
| Α | Accuracy marks awarded when following on from a correct method. It is not necessary always to see the method. This can be implied. | | |
| В | 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 INTERMEDIATE TIER

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

| 1(a) | Attempt to add 5 values | M1 | Possibly implied from answer 20 seen in (a) |
|------|---|--------|---|
| | $\frac{1}{20}$ | A1 | oe 0.05, 5% |
| (b) | $\frac{19}{20}$ | B1 | oe 0.95, 95% |
| | | | |
| 2(a) | 15 | B1 | |
| (b) | 13 | B1 | $\frac{15}{50}$ and $\frac{13}{50} \rightarrow SC1$ |
| | 1 | | 1 |
| 3 | fx | M1 | eg 1 \times 50 seen (not 50 alone) or 2 \times 80 or 160 or 50 \times 50(p) etc |
| | $\Sigma fx (= ``1000")$ | M1 dep | Adding 'correct' 5 products $1000 \rightarrow M1M1$ £500 $\rightarrow M1M1$ |
| | "1000" \times 50p - £100 | M1 dep | Not $335 \times 50p - \pounds 100$ |
| | =£400 | A1 | |
| | | ſ | 1 |
| 4(a) | i) 0.6 × 10 | M1 | $\frac{0.6}{10} \times 100 \qquad \qquad \text{M0}$ |
| | = 6 | A1 | M1 seen then $\frac{6}{10} \rightarrow$ penalise once on whole paper |
| | ii) 0.44 × 50 | M1 | Allow M1 for 0.48×50 (misread) |
| | = 22 | A1 | |
| (b) | 0.4 | B1 | oe $1 - 0.6 = 0.4$ B0 |
| (c) | i) 2 | B1 | $\frac{2}{5} \rightarrow$ penalise if not already penalised in (a) |
| | ii) 0.4 × 0.4 | M1 | |
| | = 0.16 | A1 ft | ft their (b) which must be a probability or correct |
| 5() | | D1 | |
| 5(a) | 54 | BI | Accept 53 - 55 inclusive |
| (b) | Locating and subtracting correct quartiles eg $74 - 40$ | M1 | Allow M1 for $72 - 40$ seen or implied or $67^{\circ} - 40$ |
| | = 34 | A1 | Accept 33 - 35 inclusive $32 \rightarrow$ M1A0 $27 \rightarrow$ M1A0 |

33001I

56 - 66 inclusive if no line

33001I

| 6(a) | 2 | B1 | Twice (02) |
|------|--|------------|---|
| (b) | 29 | B1 | |
| (c) | 12 | B1 | |
| (d) | 5 and 30 | B1 B1 | Accept 05 –1 each additional error |
| | | | |
| 7(a) | Vertical scale linear from zero | B1 | Scale up to 20 (ignore above 22) Accept scale without 0 marked |
| | All 4 correct heights from their linear scale | B1 | Within or on class boundaries $\pm \frac{1}{2}$ square |
| | Correct boundaries (histogram) or correct mid-points 5, 15, 25, 35 joined by 'straight' lines (frequency polygon) | B1 | Accept reasonably straight freehand lines (not curve) Ignore extremes |
| (b) | $10 < t \le 20$ | B1 | |
| (c) | Overlapping intervals | B1 | Accept 'no box for £0' or 'didn't spend anything' Do not accept 'range is too restrictive' |
| 8(a) | A Negative | B1 | |
| | B Zero | B1 | Accept: None or No |
| | | D 1 | |
| (b) | i) Suitable line | B1 | From $x = 20$ to $x = 70$ (20, 10 - 24) to (70, 50 - 64) inclusive |
| | ii) About "60" | B1 ft | ft line if correct $\pm \frac{1}{2}$ square |

33001I

| 9(a) | $\frac{2}{5}$ seen in part (a) | | B1 | |
|------|--|---|----|--|
| | One pair of branches labelled | | | Accept penalty, no penalty for score, |
| | somehow correctly and with | | B1 | no score |
| | correct probabilities | | | (but not penalty 1, penalty 2) |
| | Fully correct | | B1 | Condone '1st penalty' and '2nd penalty' headings missing No labels but otherwise fully correct \rightarrow SC2 |
| (b) | $\frac{3}{5} \times \frac{2}{5}$ or $\frac{2}{5} \times \frac{3}{5}$ | ft from correct structure if | M1 | One correct product seen or $\frac{6}{25}$ |
| | $\frac{3}{5} \times \frac{2}{5} + \frac{2}{5} \times \frac{3}{5}$ | (ie labelled) and all are probabilities | M1 | Addition of 2 correct products (or \times 2) |
| | $=\frac{12}{25}$ | | A1 | oe 0.48 If answer given in (b) is wrong and there is no working in (b), credit can be given if clear evidence seen in (a) leads to the answer given in (b) |