

Principal Examiner Feedback

November 2011

GCSE Mathematics (5381H)
Paper 06

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Publications Code UG029733

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1. PRINCIPAL EXAMINER'S REPORT – HIGHER PAPER 6

1.1. GENERAL COMMENTS

- 1.1.1. This paper was a little more challenging than recent papers. Question 1 was particularly poorly answered being unfamiliar to many.

1.2. REPORT ON INDIVIDUAL QUESTIONS

1.2.1. Question A1

Only the most able recognised the demands of this question; candidates either gaining full or no marks.

0.5 (32 – 31.5) was the most common incorrect answer.

Some worked out 31.5×8 and then 32×8 or multiplied both means by 9 and went no further.

Sight of $31.5 \div 8$ and $32 \div 9$ was not uncommon.

1.2.2. Question A2

$20 < t \leq 30$ (middle of the intervals) was a common incorrect answer to part (a), as was $30 < t \leq 40$ (from the frequencies 3, 4, 6, 8 and 9 in order).

In part (b) the most common error was to plot the points consistently at the upper ends of the class intervals; sometimes these were joined correctly to gain one mark. At other times a closed polygon was drawn gaining no marks. A significant number of candidates simply drew a histogram.

1.2.3. Question A3

Accurate plotting of the given points was the norm, although some chose to plot the points, translated 5 units to the left and some at the mid-values of the cumulative frequency intervals.

In part (b), understanding of percentiles varied. Whilst many were able to demonstrate a correct method to find the median and quartiles, a great many were not. Attempts were made at $cf = 35$ in part (i) and $cf = 17.5$ and $cf = -52.5$ in part (ii) reading the 100th percentile at 70 instead of 60. Many candidates gave the values of one of the quartiles as their interquartile range.

1.2.4. Question A4

This question was poorly answered. The modal response was to draw a simple bar chart, ignoring completely any reference to frequency density. Those who understood frequency density usually got full marks.

Some candidates made good efforts to draw the histogram, usually using a scale of 1 centimetre square = 2 units of frequency. Rarely did this gain full marks as the frequency density axis was usually not labelled

1.2.5. Question B1

The majority of candidates scored well on this question and in part (a) were able to correctly communicate two or more criticisms of the given question.

Part (b) was also successful although a significant number failed to quote a time period. Response boxes were usually acceptable; in some cases overlapping but exhaustive and in some not exhaustive but not overlapping.

1.2.6. Question B2

The majority of candidates offered largely correct answers using a correct method. Common errors included: Incorrect addition of the five probabilities but followed by correctly subtracting the total from 1 or adding only four of the probabilities and then subtracting the total from 1. A few candidates just added the probabilities and gave 0.85 as their answer.

1.2.7. Question B3

Many candidates obtained the correct answer of 9. However many were unable to indicate the correct working even though they were doing the correct arithmetic.

Eg. $180 / 0.05 = 9$ or $180 / (1/2) = 90$

Many wrote 180×0.05 but were unable to do the working for this correctly with many place value errors.

The most successful methods of correct working were from those that recognised 0.05 as 5% and did $10\% = 18$, $5\% = 9$ and $100 \times 0.05 + 80 \times 0.05 = 9$.

However, this second method gave rise to a number of answers of 45, having done $100 \times 0.05 = 5$ correctly, but then going on to do $80 \times 0.5 = 40$.

The grid method of multiplication was very rarely successful in producing a correct answer, although candidates understood the principle and indicated the correct method, they were then unable to combine their answers to give a reasonable answer.

The other incorrect answer that was seen often was $0.05 \times 100 = 5 \times 80 = 40$.

1.2.8. Question B4

Many correct answers to part (a), although $18 \div 4$ was often seen equal to 4.2 or 4.25 instead of 4.5. Some found the mean of the 4 moving averages given and some tried to find a 3-point moving average instead of a 4-point. Arithmetic errors let down many candidates here.

In part (b), whilst the majority offered a description of the trend as 'decreasing' or 'going down', many incorrectly offered 'negative' or referred to the seasonality of the data.

1.2.9. Question B5

This was answered well by those candidates with an understanding of probability. Many however assumed replacement and second probabilities were often out of 10.

Most candidates attempted to draw probability tree diagrams, usually successfully, although many went to a third set of branches and many in the second set offered probabilities out of 8

Once again arithmetic errors prevented many candidates gaining full credit. Examples such as $2 \times 1 = 3$ and $\frac{5}{10} \times \frac{4}{9} = \frac{9}{90}$ or $\frac{20}{19}$ were common.

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Order Code UG029733 November 2011

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