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Principal Examiner Feedback

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GCSE

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Higher Paper (5381H/06)

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1 PRINCIPAL EXAMINER'S REPORT – FOUNDATION PAPER 6

1.1 GENERAL COMMENTS

1.1.1 Candidates were able to make inroads into the early part of the paper and often made a good attempt at question 4A. In several questions there was some evidence over confusion of method. This was very apparent in question 3A, the mean of a grouped frequency table.

1.1.2 Candidates continue to neglect the opportunity to check answers (question 1 on 6B) or to ask themselves whether answers are reasonable (question 3 on 6A). Some candidates show up without a calculator and so handicap themselves from the start.

1.3 REPORT ON INDIVIDUAL QUESTIONS

1.2.1 Question A1

Most candidates knew that they had to work out 0.35 × 200 and then carried this out correctly. Some left their answer as the fraction $\frac{70}{200}$ thus losing a mark (although "70 out of 200") would have been acceptable. Some candidates thought that the correct approach was $200 \div 3$ presumably because there were 3 outcomes in the table. Sadly, a good few did not understand the concept. For some candidates who had not brought a calculator the challenge of 0.35×200 proved too much, with commonly 0.70 seen.

1.2.2 Question A2

This question elicited a wide variety of responses. The most popular correct one was to state that the units were missing, although it was slightly bizarre to read that those units should be centimetres. Some candidates thought that the missing units should be time. This was not accepted as an answer. Another popular answer was to note that the number '2' appeared in more than one response box. The other two ideas that were commonly expressed were that distances between 3 and 4 (units) could not be entered in the response boxes, nor could any distances which were less than 1 unit. There were some other insightful answers which gained a mark, for example, it could be that a student travels a different distance on different days of the week. Some candidates thought they should extend the idea of the questionnaire, for example by subdividing it into mode of transport, but they did not get a mark. Generalised statements such as 'The questionnaire is too vague' were too vague to be awarded a mark.

1.2.3 Question A3

This is a standard question on finding an estimate for the mean of a frequency distribution. Many candidates had not remembered the technique, nor understood what information a frequency distribution summarises. There was some evidence of confused thinking where candidates worked out the cumulative frequencies and then multiplied them by the values at the midpoints of the corresponding interval. Correct methods were not that often seen. Many candidates had half-remembered the process of multiplying something by the frequency but this often consisted of the something being the interval width. Some candidates did find the sum of the frequencies times the mid-value but then divided by the number of class intervals giving an answer 10 times the correct one and a value that was comfortably above anything in the last interval.

1.2.4 Question A4

Candidates' performance in drawing histograms is improving over time with 43% of candidates gaining full marks. When candidates made mistakes it was usually with the frequency density as this was often calculated the wrong way round but the most common mistake was to draw a bar chart. Candidates would also help themselves if they used an HB pencil or softer when drawing graphs.

1.2.5 Question A5

This was standard, straightforward question which candidates usually approached via the $\frac{18}{200}\times 25$ route. Some left the answer (2.25) to this as their final answer and thus scored only 1 of the available marks. Others used the equivalent $\frac{200}{25}$ approach to find how many times bigger the population was than the sample and then continued by finding $18\div 8$. Acceptable, but rare was $200\div 18\ (11.1)$ followed by $25\div 11.1$

1.2.6 Question A6

This proved to be a very challenging question. The easiest approach is to note that there are 30 centimetre squares under the histogram so that 1 centimetre square represents $75\div 30$ people. The area which represents the region >325 is 16.5 cm^2 so the answer is found from 16.5×2.5. Credit was also given to those candidates who started to work out the number of letters in each of the columns to the right of 325. Approaches using frequency density were very rarely successful.

1.2.7 Question B1

This was a routine question which involved summarising 20 numbers into a stem and leaf diagram. Many students needlessly lost a mark by failing to count the number of entries in their own stem and leaf diagram thus not noticing that that number of numbers in the stem and leaf was less than 20

1.2.8 Question B2

The first part of the question required candidates to state either negative correlation' or to describe correctly what happened to the temperature as the water got deeper. As depth is essentially a negative quantity, markers were sympathetic to the language used to describe the relationship between depth and temperature. The second part required candidates to estimate a temperature at a given depth. This could be done by eye or by using a line of best fit drawn by the candidate.

1.2.9 Question B3

This question involved reading from a cumulative frequency diagram and then subtracting from 100. Many candidates knew how to use the curve and draw a line from 57 and then across to the cumulative frequency axis. However, many candidates could not read this axis correctly; they did not notice that each small square was 2 units. Many others did not subtract their reading from 100. Others thought that they should start on the horizontal axis at 58 or did start at 57 but could not draw a line accurately enough.

1.2.10 Question B4

Part (a) required candidates to draw an accurate box plot from the data in the table. This many could do, especially as a corresponding box plot had already been done. Some made life difficult by superimposing their box plot over the given box plot. Candidates tended to concentrate on point statistics in their answers to part (b), but only gained one mark unless they made an additional comment about some measure of dispersion such as the range or about the skewness of the distributions. There was some confusion over the interpretation of the statistics, especially the median. Some candidates stated that on average the girls were faster because they had a higher median.

1.2.11 Question B5

This was a challenging question as there was no structure offered. Candidates went for two different approaches – using a sample space or from a probability tree diagram. For the sample space method, many just listed (1, 2), (1, 3), (2, 2), (2, 3) and (3, 3) and concluded that the probability was $\frac{3}{5}$. Those candidates who did attempt to use an equiprobable sample space could not list all the 15 (or 30) outcomes in the sample space, because they did not work systematically enough. For those that used a tree diagram, some considered branches which were odd or even whilst others considered all 6 possible outcomes. In general, the first approach proved more successful, as in the second candidates often only worked out 1 or 2 correct probabilities often ending up with an answer of $\frac{2}{30}$

1.3 GRADE BOUNDARIES

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