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Principal Examiner Feedback

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GCSE

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Higher Paper 01

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1 PRINCIPAL EXAMINER'S REPORT – HIGHER PAPER 1

1.1 GENERAL COMMENTS

1.1.1 Most candidates attempted the majority of questions. However there were a small number of cases when the number of responses on the paper were very sparse, centres must ensure that pupils are entered at the correct tier.

1.1.2 The question which asked for the cheaper option was answered in a multitude of ways. The first concern is that pupils show evidence of not fully reading the question asked. They find it very difficult to take real life data from a table and use it accurately. Additionally even when correct calculations are seen they add spurious comparative comments and calculate extra information which is not requested. Centres should help pupils to identify the comparison or specific aspect required, i.e. is the question asking you to compare, recommend, work out the best value or select just the cheapest option or options available. Additionally centres should also give pupils more practice in deciding which calculations should be carried out to aid the decisions taken.

1.1.3 It is quite clear that candidates need to get used to the C marks and QWC in general. Centres should use the published mark scheme and examiner's report to help inform candidates for future examination series.

1.1.4 This is a calculator paper but all too often candidates did not use them leading to inaccuracies in final answers. The advice to centres is to ensure that candidates can appropriately use their calculators.

1.2 REPORT ON INDIVIDUAL QUESTIONS

1.2.1 Question 1

In part (a), many candidates scored at least one mark here – in many cases for indicating bias involving gender. Some also mentioned the bias involving age or PE. Quite a few scored a mark for stating that the sample was not large enough but some then spoilt this by saying that the whole class or whole school should be asked. Only a few commented on the fact that the sampling method was not random. Some students made erroneous reference to the structure of the question (e.g. a missing time frame) rather than commenting on the sample being used for the survey.

Many candidates gained full marks for part (b). Many had clearly been taught not to overlap the response boxes – responses of the type 0-1hr followed by 1hr1min-2hrs were often seen. Where full marks were not gained it was often possible to award one mark which was usually for a suitable question with time period then followed by overlapping boxes or boxes with no units.

Several candidates attempted to use inequalities in their answers but many did so inaccurately creating periods of time that overlapped.

1.2.2 Question 2

The majority of candidates were able to answer (a) correctly. Occasionally (11.5, 73) was not plotted or on the wrong y coordinate, otherwise very well done.

In part (b) most candidates described a dynamic relationship correctly with a minority using the words 'positive correlation'. A few though talked in terms of the gradient of the line rather than interpreting the relationship in correlation terms. Additionally a few candidates stated negative correlation or some used the phrase 'hotter' instead of hours of sunshine.

In part (c), the majority of candidates gained 2 marks. Where a line of best fit was drawn, it rarely failed to be within limits and candidates were usually successful in finding a correct answer. A substantial number did not draw a line of best fit however even then, the majority of answers were within range. Errors were often made by misreading the y-axis, common to see 67 marked with 77 on the answer line. Insufficient candidates drew the line x=10 up to the 'line' and across.

1.2.3 Question 3

The first part of the question was often well answered and a pleasing number of candidates were able to score the communication mark. Many responses got at least two marks for the correct method with answers of 100 and 40 and many were able to link the number of freezers and cookers to their working in order to gain the final mark. However there were some who attempted the question using the 'build-up' method, this rarely led to the correct answer. Common errors were to divide 140 by 5, 2 or both to obtain 28 and 70 as answers. Some candidates even added these to obtain 98 without realising that the total should be 140.

Many candidates gained both marks in part (b) but the answer of 116 was commonly seen indicating that the question had not been read carefully enough. 116 was sometimes from the student finding 80% directly and often from the student finding 20% and subtracting £29 from £145. Dividing £145 by 20 and £145-20 unfortunately appeared quite often.
Finding 20% by 10% + 10% was sometimes successful but finding 80% by building up was usually unsuccessful.

1.2.4 Question 4

There were many more two way tables than in November and the majority of candidates who used a well-labelled two-way table got full marks. (This method must be encouraged by centres.) Some candidates lost the final mark because they did NOT highlight their answer in the table and failed to put the answer on the answer line. Less successful were attempts to answer the question without any real structure. In these responses, numbers appeared without labels making it difficult to award credit. This question particularly highlighted the importance of organising and labelling the given information.

1.2.5 Question 5

This was generally very well done. Most candidates were able to demonstrate a correct method. The main error was dividing by 0.85 instead of multiplying. Other errors were to divide 0.85 by 100 before multiplying (answer 6.8) and finding 1-0.85 or 15% eg 120. Another common error was leaving the answer as a fraction 680/800. A few rounded/estimated the probability first thus using 0.9 and then multiplied by 800. A few gave their final answer as an estimation i.e 700.

1.2.6 Question 6

This question was not very well answered with candidates showing a lack of understanding of what was being asked. Many candidates calculated the sum of fx as 127 scoring M1 but then divided this answer by 14 or 15 and rounded their answer. Unfortunately a few found the values of fx but then did not find the total of these and so scored M0

The working of 15 x 9 (=135) was rarely seen and the difference between 135 and 127 was even less frequent. Some candidates used trial and improvement methods by adding numbers on to '127' until they arrived at the correct answer, or by adding extra values into the table and then calculating the different means. Some of these methods appeared time consuming.

1.2.7 Question 7

In part (a), candidates appeared to find this question challenging. Some scripts were blank and many had the answer of 12 but it clearly came from incorrect working usually, the calculation 47 – 35 (greatest time – upper quartile), and so scored no marks.
Some candidates calculated 75% of 48 to give 36 but then failed to subtract this from 48.

The majority of candidates attempted the box plot and usually scored full marks for part (b). The most common error was plotting 48 not 47 or omitting the median.

In part (c) many candidates concluded that journey times were longer on Tuesday than they were on Monday or that the median time was higher. However comparison of range or interquartile range was less common. Unfortunately many just listed times for Monday and times for Tuesday without making any comparison. One mark was often awarded for a correct comparison and the second mark not awarded as no context was offered for these comparisons.

1.2.8 Question 8

There were some fully correct answers here. However considering candidates should have been prepared to be assessed for the quality of their written communication on this asterisked question, the response was very disappointing. Often it was left to the examiner to decide whether a calculation was for June or November, and circling a final answer is not considered worthy of a communication mark for choosing the cheapest option. Similar questions have been seen before on preparation material so centres need to prepare their candidates for this type of question. This question requires good organisation in order to correctly calculate consistently and to clearly communicate the answer.

One of the biggest problems was the failure to read or understand the tariff within the table of information given. This resulted in numerous inconsistencies. The most common mistake was taking the room charge quoted as per room not per person so ending up with costs that were a mixture of one and two people, even more prevalent was the failure to take into account the offer of 3 nights for the price of 2 in November
e.g. candidates often got the calculation correct for June, £631.50, but then ignored the fact that in November you got 3 nights for the price of 2 and still just did (4 x 2 x 59.75) + (4 x 2 x 31.75) = £732. A few also assumed that the meals were 3 for the price of 2 as well. A few used the same hotel price or the same meal price in error in their calculations –
i.e. used £31 for the meals both in June and November.

Despite this being a calculator paper arithmetical errors were very common. Additionally pupils added extra calculations for other visit periods, not detailed in the question or talked about best value instead of giving the cheapest option.

It is imperative that pupils answer the question asked with clear calculations to support their conclusions in order to be successful at this type of question.

1.2.9 Question 9

For part (a) most candidates were able to add the probabilities to obtain 0.76. Many understood that the probabilities should add to 1 and were able to subtract to get 0.24 but then this was commonly divided by 3 rather than 4. The divide by 3 resulted from the 3x in the table which suggests that centres need to be aware of the link to algebra rather than the old style tables which required finding the missing box. Those who did manage to divide by 4 often got an answer of 0.6 rather than 0.06. Some failed to note the decimal point and divided 24 by 4, without noting that this was then a percentage.

Few candidates gained full marks in part (b). Many scored one mark for one correct product, most thinking that the only possibilities were 3+5 and 4+4. Many did not consider 5+3 as well. Four pairs were often identified rather than three. Having made a choice of pairs, candidates frequently added the probabilities rather than multiplying. Common wrong answers seen were 0.46 and 0.42. A minority used a two-way table clearly showing the three ways of scoring 8 but generally assumed the probabilities in the table were all equally likely, ignoring the information in part a and thus producing an incorrect answer.

1.2.10 Question 10

In part (a) many candidates scored the 2 marks for obtaining the products of the midpoints and the frequencies, showing correct calculations for at least 4 of the 5 products fx and using the correct midpoints. The most common error seemed to be 15 x 0 = 15
After gaining the first two marks many went on to add and then divide by 60 but division by 260 or 5 were common errors. In some cases it was clear that candidates did not know how to approach this question and instead used the columns to calculate cumulative frequency or frequency density.

Part (b) was answered correctly by a majority of candidates although a few did not seem to know what was required and listed midpoints or worked out frequency density. Even though candidates had a calculator, again arithmetic errors were seen.

In part (c) students generally managed to plot the points that they had identified in (b) correctly but many lost the marks as they failed to join the points. Points were sometimes badly joined particularly the last two often resulting in a curve which contained a negative gradient. Encouragingly the plotting at midpoints was rarely seen.

Many candidates who had a cumulative frequency graph understood what to do in part (d), although a few had difficulty reading the vertical axis with 36 or 37 being read as 46 or 47. Some failed to read the question carefully and so did not subtract their value from 60 so giving an answer for a weight less than 63 grams rather than more than.

1.2.11 Question 11

The first part was generally correct, although it was not uncommon for candidates to put different probabilities on Luke's second branch. The most common wrong ones were 0.8 and 0.2 or 0.4 and 0.6 reversed.

In (b) a lot of candidates with a fully correct tree diagram could follow through correctly. However, it was common to see 0.2×0.4=0.8 even though candidates did have access to a calculator. The main error seen was adding 0.2 and 0.4 resulting in 0.6, this was seen very frequently.

1.2.12 Question 12

There were mixed responses to this question. Some clearly knew what stratified sampling means and worked out the correct ratio 34/182 or 50/182 and then multiplied by 50 or 34 appropriately. Some unfortunately rounded at each stage and rounding errors led to an incorrect final answer. Common errors were 50/4 = 12.5 and then rounded to 12 or 50/2. A few who used the correct method unfortunately left their final answer as 9.34 and so failed to score the final mark.

1.2.13 Question 13

Candidates who understood the principle of compound interest usually obtained full marks, often by calculating the amount after 1, 2, 3 and 4 years. More sophisticated answers involved the use of 1.034, however, it was common to see the correct answer without working, probably from good candidates failing to show their working. Candidates do need to be strongly advised to show all calculations.

However, there were a variety of incorrect responses largely coming from use of simple interest. Many of these found £75 for the first year and then attempted to divide £313.77 by this to get an answer. Others kept on adding £75 until they got close to the required amount.

1.2.14 Question 14

In (a), most candidates were able to find the first frequency, but a frequency of 30 was common for the second value in the table. Other wrong responses often seen were 10 and 30 or 50 and 150.

Many candidates left part (b) blank or produced answers with bars drawn off the graph or very tiny. Also, some candidates just drew bars of frequency 30 and 50, so in effect a bar chart with different size widths. Other candidates were able to calculate the frequency density correctly, so picked up a M1 mark, but then were unable to draw the two bars required. In general candidates appear not to be aware that the area of the bars of a histogram are the frequencies, evidenced by a lack of frequency density calculations. A few of them had used 1 sq. cm. = 2.5 to calculate the frequencies and the drawing of the bars but this was rarely seen.

1.3 GRADE BOUNDARIES

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