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Free-Standing Mathematics Qualification

Handling and Interpreting Data 6986

Report on the Examination

2007 examination - January series

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Handling and Interpreting Data (6986)
Examination

General

A high proportion of candidates entered for this paper were well prepared for most of the topics examined, with many achieving good total marks. However, it was noticeable that students from some centres had difficulty with certain topics. Frequently, the questions on cumulative frequency and comparative pie charts were poorly attempted. Disappointingly, some candidates did not have a protractor which was needed to measure the angle in question 4. A few candidates appeared to have neither a protractor nor a calculator.

It was noticeable that many candidates had problems expressing their thoughts clearly in questions when a conclusion, a comment or a criticism was required.

Topics found difficult included:

- histogram, question 2;
- explanations, questions 3 part (d) and 7.

Question 1

Most candidates calculated both means in parts (a)(i) and (ii) correctly. In part (b), most candidates used suitable scales and plotted the points correctly. In a small number of cases, the scale used did not allow the point (901, 0.962) to be plotted but these candidates were still able to access parts (c) and (d). An acceptable line of best fit was drawn in most cases in part (c), although many candidates failed to plot the double mean, or if they did, failed to draw their line through it. In part (d), most candidates used their line of best fit to obtain the population for Buckinghamshire. Candidates who indicated a correct method sometimes misread the scale on the vertical axis.

Question 2

It was clear that lecturers and teachers had guessed that the mean of a grouped data would be asked in this question, as many candidates found the mid-interval times in part (a). Unfortunately, the question involved histograms and therefore many candidates answered it badly.

Very few candidates made progress in part (b). In part (i), the fact that 13 tyres had lasted over 45 000 miles was rarely found. Similarly in part (ii), very few found 38 to be the number of tyres which had lasted between 42 000 and 50 000 miles.

Question 3

A significant proportion of candidates failed to calculate the cumulative frequencies. Candidates who did find the cumulative frequencies usually went on to construct a cumulative frequency curve, although some drew very rough graphs.

In part (b), the correct positions of the median and the quartiles, for example the 40th, 20th and the 60th, were usually shown but a few candidates made no further use of these values. However, most candidates found the median and quartiles accurately.

Parts (c) and (d) were well answered, although in the box and whisker diagram a few used 80 for the end of the whisker rather than 40. Candidates found it difficult to comment on the difference in the two plays. They often stated that more plays were performed in evenings, or that the first, or the second, play was performed a greater number of times. Few stated that at least one of the first plays had an audience of 50, whereas the maximum audience in the one on the data sheet was 40.

Question 4

Many candidates made progress in this question. Column D was usually found correctly and most attempted to divide column D by column E to find the populations. The requirement to find the populations to the nearest 0.1 of a million was frequently ignored.

Question 5

This question was often well done. Part (a) was completed well by most candidates. Problems in part (b) arose when candidates quoted $r_1 = r_2\sqrt{\frac{n_1}{n_2}}$ but were unable to produce $n_2 = \frac{r_2^{\,2}}{r_1^{\,2}} \times n_1$. A few found $\frac{4}{25}$ × 714 000 rather than $\frac{25}{4}$ × 714 000. However, a significant proportion just multiplied 714 000 by $\frac{5}{2}$.

Question 6

This question was well answered with the majority of candidates realising that the bar for "Chamber of Secrets" did not match its sales figure of 1.15 million. A few candidates also mentioned the lack of a bar for "The Philosopher's Stone."

Question 7

Many candidates gave one correct criticism, which was usually recognising that there was no scale. A smaller number mentioned the lack of clarity in the data values used in the pictogram. A common incorrect response was to question the type of petrol used. The major problem was that the data was matched against the vertical scale whereas the reader would expect it to be matched to the area of each block.

Portfolios
FSMQ Intermediate Level – January 2007

As usual in the winter series, the entry was quite small for intermediate level. There were many pleasing portfolios for **Calculating Finances** with the savings and income deductions tasks being particularly well done.

Some candidates found the analysis of accounts difficult, especially the carrying forward of information.

Centres should pay particular attention to the completeness of portfolios; details of the scaling required for incomplete portfolios are given in the 2007 specifications.

Candidates should particularly ensure that they include two different methods for short term borrowing (e.g. credit card and bank loan) and two different methods for long term borrowing (e.g. mortgage and student loan).

Although there were good portfolios submitted under **Handling and Interpreting Data**, in several centres candidates did not include topics belonging to the intermediate unit which are not within the foundation unit (e.g. cumulative frequency diagrams, histograms with uneven intervals etc). It must be remembered that for a mark of over 35 a significant proportion of the portfolios must demonstrate these techniques. Candidates should also be encouraged to use probability measures and to ensure they investigate the effect of using at least two different groupings of part of the data on diagrams and measures.

Overall, it was pleasing to see independent work carried out by candidates and encouraged by their teachers. Most centres carried out administrative procedures satisfactorily.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the **Results statistics** page of the AQA Website.