Examiners' Report
Principal Examiner Feedback

Summer 2017

Pearson Edexcel Mathematics in Context
Level 3 Core Mathematics (7MC0/01) Paper 01

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Introduction

This is only the second time this qualification has been set.

The paper was accessible to all students, with all questions attempted by a good proportion of students.

The standard of work seen was an improvement on the standard of work seen last year. The students appeared better informed of the specification and expectation of the paper.

Reports on Individual Questions

Question 1

In part (a) many correct answers were seen.

There were 15 items of data in this list and so $(n+1)/2=8$, and then looking up the 8th term was the most appropriate method for such a small data set, most students used this method.

Many correct medians and quartiles were given. Students found it more difficult to work with the outliers even though the formula is given. Some calculated the boundaries for the outliers but just ignored them. Many students used the table to indicate the key data and this was an acceptable method.

The box plot was usually at least partly correct with the main errors again seen when dealing with the outliers. Even students with the correct outliers still gave incorrect lower tails or both a 'full length' tail and the outliers. This could be one area in which centres could help students to improve for future series.

Part (b) required interpretation and comparison of the distributions, as with these questions in the previous examination the answers were variable. Students should try to compare the median and the spread of the data in context. Their statements should use the correct terminology eg median not middle and the correct context, for example this data is about energy produced but many talked about energy used.

Question 2

Most students accurately calculated the required moving average. Very few errors were seen but a few did average the existing moving averages.

In part (b) many correctly plotted the points although some errors in the year required were seen. Points should have been plotted at 2006, 2007, 2008 etc not at mid points.

Several approaches were seen for part (c) of the question. The main method seen was to extend a line of best fit and use this to estimate the answer. On the whole this was the most successful method seen and should be encouraged. Of the errors seen, some students drew very inaccurate lines or just drew a line straight out from the last moving average plotted at different angles. If this was an extension of the line of best fit then it was acceptable but if it appeared as a random line the students' intention was not clear.

Alternative methods such as finding the average increase or a pattern in multipliers were usually less successful. Often, incorrect assumptions or numbers were used, errors in arithmetic were seen and these methods appeared far more time consuming.

In part (d) many students correctly described the need to extrapolate and were awarded the mark. Others chose not to refer to the data and the times but seem to list a variety of influences not relevant to the question. This question is really about statistical techniques not about knowledge of world affairs.

Question 3

In part (a) many students scored some marks. However the spread of marks was variable. Most could select both the correct figures to use and were awarded a mark for the selection. Some students could deal with using 365 as they realised that the number of barrels was per day whilst others knew that a division was required to work towards the correct answers. Either of these methods gained a method mark. However, students found it more difficult to combine all the elements of this question and few showed a complete method without getting the final answer correct.

In part (b) most students could select the correct formula. The most common error seen was to select (B3-B2)/B2/100.

Part (c) was well answered. Students showed sufficient working to convince the examiner that they had arrived at the given answer through correct working. Of the errors seen most were arithmetic. It is expected that students can use BIDMAS and calculators effectively when calculating a mean.

Part (d) was intended to test the summation of a GP, a higher order skill. However, most students failed to engage fully with this concept. The use of the rule to sum the figures was rarely seen, lists of figures and addition was the preferred method shown.

Question 4

Part (a) was well answered. A few students did not use the digit 2 and a few used this digit twice in their calculations. Most students showed clear working and gave the correct answer.

For part (b)(i) many correct answers were seen. If the 3 marks were not awarded then the modal score was 1 mark. These students failed to give the figure for 3 terabytes and just gave the figure for 1 terabyte.

In (b)(ii) students were usually able to extract the correct figure from the information given. They often then compared this figure with their answer to part (b)(i) this could gain full marks if the units were comparable. One of the main errors seen was to ignore all units given and compare a figure in dollars with a figure in cents as if they were the same unit.

Question 5

Most students were able to correctly answer part (a) of this question. A minority forgot to put millions on their final answer, either writing the word millions or multiplying by 10^6 was acceptable. Some students gave the answer of 36 708 000 and this was obviously acceptable and then used in part (b).

Almost all students scored some marks on this part of the question although some used an incorrect figure for the 12.8%. The main error seen in this question was to forget to give an estimate of the change in income. Whilst many realised it was a decrease they seem to forget to answer the question fully, which lead to the loss of the accuracy mark. The accuracy mark was available for an estimated answer but many students chose not to estimate at any point in this question and gave a fully accurate answer, as long as this was a correct accurate answer full marks were awarded.

Students are advised to look when estimates are required as the use of estimation usually eases the required calculations.

Question 6

It was pleasing to see an increase in the proportion of students who could successfully calculate both the product moment correlation coefficient and the Spearman's rank correlation coefficient.

Accuracy was sometimes a problem in part (a) and again in finding the sum of the differences in ranking for part (b). A minority of students still fail to rank the data when calculating the Spearman's rank correlation coefficient, centres are advised that this in an essential skill for this qualification.

The interpretation in part (c) did require a comment about the correlation coefficients or the different processes. An interpretation of the figures in the table would have been sufficient and follow through of interpretation of any incorrect figures calculated was allowed, assuming these figures could be a correlation coefficient. Two correct, sensible and different statements were required.

Question 7

This question proved difficult for some students but not for all. Some empty scripts were seen, many fully correct answers were seen but the modal response was to begin to use the probability and figures given but not really use them effectively to come to a decision. The use of the percentage to calculate the commission required or the reduced income was rarely seen in answers which were not complete.

In summary the following advice is offered

- Students should cover all the specification prior to exam entry
- Students should have access to all previous questions, particularly the sample paper and previous series
- As this is a comprehension paper students must read all the question carefully, extract information from the relevant places and then process it. It is easy under these circumstances to lose focus on the question asked. It is advisable for centres to actively encourage students to check final answers and ensure they have covered all the points in the question set.