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# AS STATISTICS

SS02 Statistics 02  
Report on the Examination

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## General

While a large number of students performed the numerical calculations well, there were many who seemed unfamiliar with the required procedures. There appeared to have been much learning by rote of techniques but a lack of experience in applying these in a variety of contexts. As is often the case, students lost marks because they did not follow the instructions telling them what was required. The quality of longer written answers was generally poor and this is clearly an area for focus when teaching. The majority of students attempted all the questions.

### Question 1

Those who made, as requested, reference to the values of an average and a measure of spread scored well on parts (a) and (b), but many ignored this instruction and scored poorly. Students should appreciate that although 38 is numerically less than 39, ranges of 38 and 39 are statistically very similar. In part (c) there was a tendency to misinterpret “symmetry” as meaning how well the two distributions matched each other.

### Question 2

Although part (a)(i) was generally well done, part (ii) showed that, for many students, basic probability methods had been forgotten. Students should remember the specification requirement for knowledge of the content of the Statistics 1 module. In part (b) some students tried to work only with the original table, with no element of change, while others ignored the “per hour” despite this being printed in bold. However, many correctly calculated the mean, and went on to show all the steps required in calculating the standard deviation. Part (b)(ii) proved to be challenging for many students.

### Question 3

Throughout this question, students often tried to carry out the correct procedure but with the wrong figures. Identifying the correct values is part of the challenge of analysing a large table like this, and perhaps the use of a ruler or some other guide would help keep eyes on track. In part (a), responses divided between those who were familiar with rounding errors and the rest who offered a wide variety of nonsensical answers. In part (b) the division was often performed the wrong way round. Students should consider whether their answer is of a sensible magnitude. In part (c), inevitably, the final value often appeared in the denominator of the fraction. Part (d)(i) was well done, and the number who were successful with part (d)(ii) was encouraging.

### Question 4

There were many highly successful responses to this question. Most students could identify which Poisson distribution should be used, but the boundary values in (ii), (iii) and (iv) caused some difficulties. In part (b) many students failed to appreciate that the problem was that the average rate of injuries could no longer be assumed to be constant, and there were often references to “random” and “independent”.

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**Question 5**

It was very disappointing that a large proportion of students could not calculate the standard deviation of the sample from the given data with many simply taking the square root of 33.552. This greatly reduced the available marks. Part (b) was often omitted, and it was unfortunate that those who did show some appreciation of what was required often seemed not to know what an integer was. Part (c) was well answered.

**Question 6**

In part (a) a large number of students simply stated that everyone would want the supermarket located near them. An almost equally large number of students stated that nobody would want the supermarket near them. The problems of surveying by this method were not well expressed. Part (b)(i) was well answered, although a minority numbered 1 to 80 (or 00 to 79). There did seem to be an appreciation of the pitfalls of random surveys in part (b)(ii), but the benefits of using a systematic sample were not well known. Correct use of the word “proportion” were very rare. The numerical calculation in part (c) was generally well done, but many completed this by doing a random selection using random number tables, missing the point of a quota sample.

**Question 7**

The missing moving average in part (a) was generally correctly calculated and the graph completed. Many students did not appreciate the distinction in part (c), and some put the same answer for both parts. In part (d), despite the instruction to use the data and the trend line, a significant proportion of students only used the two values that had matching moving averages, rather than using all three data values available. Nevertheless, part (e) was well done. In part (f), although many correctly identified October 29<sup>th</sup>, only a small proportion showed that this was the first day by investigating October 22<sup>nd</sup>.

## **Mark Ranges and Award of Grades**

Grade boundaries and cumulative percentage grades are available on the [Results Statistics](#) page of the AQA Website.

## **Converting Marks into UMS marks**

Convert raw marks into Uniform Mark Scale (UMS) marks by using the link below.

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