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Examiners' Report  
Principal Examiner Feedback

Summer 2022

Pearson Edexcel GCE  
In Statistics (9ST0)  
Paper 03: Statistics in Practice

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## General Comments

This paper was the most accessible of the three papers. As with both paper 1 and paper 2, a common area for improvement is ensuring that answers are given in context, in context, rather than simply being stated in general terms.

## Report on Individual Questions

### Question 1

Candidates answered the beginning of this question well. However, when it came to commenting on the diagram, some candidates gave comments about the mean and standard deviation, as opposed to the median and the interquartile range or range. Some comments were also too vague, referring, for example, simply to the median of the control group rather than specifically relating that information to the median of the control group one month after the experiment. As a general rule, candidates should focus comments on differences and changes seen in spread and average, rather than making mention of specific quartiles or medians.

### Question 2

Candidates did very well on this question in general, though conditional probability caused issues for some candidates in the last part of this question.

### Question 3

Some candidates failed to realise that a  $t$  value was required for this question, rather than a  $z$ . In part (b), most candidates compared their confidence intervals, and some candidates gave answers commenting on what this showed, but then did not comment on Klazine's belief as they were asked to do.

There were lots of possible mistakes in (c) that could be made if candidates weren't taking care, but this is a standard hypothesis test and done well by many. Parts (d) and (e) required comments, and it should be noted that whilst it is possible to use  $t$  when  $n \geq 30$ , a  $z$ -test is more powerful in this situation. Some excellent comments were seen from the most able candidates in these parts.

### Question 4

Candidates approached this question well, with many able to do well on the calculations. Some candidates were incorrect in stating the parameter of the exponential distribution, using  $\frac{1}{2.8}$ , the mean, instead of 2.8. In (h) candidates were able to identify the assumptions required for a Poisson distribution, but did not always tie these to contextual reasons.

### Question 5

This question was answered well, although, in part (d), some candidates missed that two degrees of freedom were lost due to estimating the mean and standard deviation, and hence they were unable to complete the hypothesis test and gain full marks.

### Question 6

This question was quite tricky, due to the unfamiliar way the data was presented in the table. Candidates who realised they were required to complete a sign test generally did very well in part (a), and, likewise, those able to identify that a test of differences was required in part (b) answered it well and many gained full marks. Candidates were able to comment reasonably well in part (c), and part (d) was the best answered part of this question in general.

### **Summary**

Based on their performance on this paper, candidates should be advised to:

- give all explanations in context.
- look out for words shown in bold type.
- keep their working to more than 3 significant figures accuracy, throughout only rounding their final answer.
- use bullet points, each written in clear, specific, and concise sentences for explanation questions.

