Examiners' Report/
Principal Examiner Feedback

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GCE Statistics S3 (6691) Paper 1

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Statistics Unit S3
Specification 6691

Introduction

The questions on the whole were well answered with many fully correct answers. Candidates found the paper very accessible and standard methods were well known and applied accurately. Marks were lost by careless mistakes rather than any lack of knowledge, but there was also a very small minority of candidates who seemed unprepared for the paper. It was pleasing to see the continual improvement in the quality of final answers to hypothesis tests with good context being seen far more often.

Report on individual questions

Question 1

Candidates often missed at least one key feature of the Central Limit Theorem but most candidates mentioned at least one of the appropriate comments. The difference between population and sample was not always well understood with references to large populations being too common and the mean was not mentioned.

Question 2

This question was answered very well by the majority of candidates, with all but the very weakest candidates offering complete solutions. There was the occasional solution that gave hypotheses only in words, but this was unusual.

Question 3

This was done very well by most candidates. Calculations were accurate and well set out, hypotheses clearly stated and a correct critical value was common. Some candidates used the easier calculation method and very few confused the solution with correlation.

Question 4

In part (a) the calculation of mean and variance were well done by the great majority with a small number using divisor 80 rather than 79, The hypotheses were less accurate, with some candidates relying on an A or B on the table to identify the populations instead of giving clearer definitions. Weaker candidates swapped 80 and 60 or identified the wrong critical value, but final statements in context were often very good.

Question 5

Many lost marks in part (a) by not mentioning hurricanes, as did many in part (b) who failed to show enough working. Even some of the better candidates carelessly lost marks here. The calculations for r and s were well done, as was the calculation of the test statistic. However many candidates lost a mark by including the value of the mean in a hypothesis. When this is acceptable is not fully understood even by some of the best candidates. There were very few who failed to pool their data and these candidates lost marks appropriately.

Question 6

Many lost a mark in part (a) by not reading the question and thus failing to give the value for standard deviation. Part (b) was well done but part(c) less so. More candidates seemed to understand the need to find the mean and variance of the difference, rather than just put numbers in a formula for z. There were very few who decided to subtract the variances, again an improvement on previous years. Also most candidates gave the probability as less than half, and it seemed that more were using a sketch to check the size of the answer.

Question 7

Part (a) saw too many poor hypotheses. The test itself was usually well done, but too many arrived at +3.51. However they then recovered to give a correct final answer in context. Part (b) had a significant number of candidates using 250 in the calculation.

Part (c) was poorly answered by some candidates, showing little understanding of the practical implications of doing tests and finding confidence intervals. Some suggested further testing to get a better result; others expected the manager to be opening the packets to insert a little more coffee. Part (d) was challenging for many but did result in a good number of correct answers, sometimes after prolonged calculations and involved probability statements.