Version 1.0

General Certificate of Education (A-level)
June 2011

Statistics SS03

(Specification 6380)

Statistics 3

Report on the Examination

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Set and published by the Assessment and Qualifications Alliance.

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General

In general, candidates demonstrated a sound knowledge of the topics in the specification and made a good attempt at all questions. Candidates appeared more competent at using a scientific calculator to evaluate the Kruskal-Wallis test statistic *H* than in previous series. Candidates generally remembered to quote final answers to three significant figures but marks were still lost by some because only two or one significant figures were quoted.

Written evidence of the method used, particularly for the χ^2 test statistic and the Spearman's rank correlation coefficient, was not always supplied and some marks were lost as a consequence. Candidates often did not explain their conclusions in the context of the question as required.

Question 1

Candidates made a good effort at part (a) and many candidates gained full marks. Candidates appeared confident to rank as one group and evaluate *U*. The hypotheses were usually stated correctly. In part (b), candidates were muddled about Type I and Type II errors and they often forgot to explain the error in context**.**

Question 2

In part (a), the Wilcoxon signed-rank test was attempted confidently by most candidates, with most remembering to find the differences between the given data and 10.8. Hypotheses were usually correct. Part (a)(ii) was intelligently answered by the majority of candidates. In part (b)(i), the comment needed to refer to the fact that the magnitude of the differences or ranks is taken into account rather than simply the sign. In part (b)(ii), candidates found it hard to provide an example in context.

Question 3

Candidates are confident with this topic and many fully correct solutions were seen in part (a)(i). The hypotheses were often stated the wrong way round with 'H_0 an association between falls and medication.' Part (a)(iii) was often poorly explained although the pooling was usually correct. In part(a)(iv), a significant number of candidates ignored the suggested pooling and others pooled again which resulted in a 2 × 2 table. Part (b)(i) caused problems for many candidates who seemed unable to grasp the information given in the stem of the question. In part (b)(ii), many candidates wasted time by calculating the test statistic themselves, despite it being given in the question. In part (b)(iii), there was some evidence that more candidates than previously were able to compare observed and expected frequencies to draw their conclusions.

Question 4

Some candidates did not show rankings and lost marks if their answer was incorrect or rounded to fewer than three significant figures. There were also many candidates who confused PMCC and SRCC. In part (d), candidates found it hard to summarise their findings in context. Part (e) was well answered with many correctly mentioning the requirement for a (bivariate) normal distribution in part (e)(i).

Question 5

In part (a), some candidates did not refer to assigning students but simply to a random way of selecting them. There were many poor responses such as 'students should be put in a hat to make it random'. Some excellent attempts were seen in part (b) and almost all candidates realised that a Kruskal-Wallis test was required. Far fewer candidates struggled to apply the formula for *H* than has been the case previously. Some candidates totalled the raw data rather than the ranks.

Mark Ranges and Award of Grades

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