A-LEVEL

Statistics

SS05

Report on the Examination

6380

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General

Most candidates were able to complete the paper in the time allowed. Working was generally clear and most candidates gave relevant and contextualised responses when writing their conclusions to hypothesis tests. Non-contextualised statements were more frequently seen in 3a (ii) and 4a (i).

Candidates were generally well-prepared for the standard techniques in the specification and produced accurate solutions to straight-forward questions. However, those questions that were less familiar resulted in variable responses.

Candidates should all be encouraged to use black ink so that written responses are clear to read. This is an AQA requirement.

Question1

This was a question designed to test the candidates' understanding of the exponential distribution. Many candidates struggled with both the units of X and the use of the probability distribution function. There were very few completely correct answers to part (a) and a lack of appreciation of the units of X affected the responses in part (b).

Question 2

This question asked for a z-test for the difference between the means from two large samples. The majority of the candidates knew the appropriate formula for the test statistic. However, many candidates did not seem familiar with summary statistics and there were errors in the calculated values of the means and variances which made it difficult for them to complete the test successfully. The responses regarding distributional assumptions in b (ii) and Type I errors in (c) were generally very good.

Question 3

This was a standard question requiring the F- test for the equality of two normal population variances and a test for a given difference between two normal population means. Both tests were generally successfully performed. The main challenge was to write the hypotheses in b (i) with the correct inequality. It is important to identify the means clearly when writing the null and alternative hypotheses and relevant suffices are usually identified in the context of the question or should be clearly identified by candidates.

Question 4

This question asked for the calculation of confidence intervals for the variance and the mean of a normal population based on a small sample of data. The intervals were generally calculated accurately. Evidence to support comments regarding confidence intervals is expected. Similarly the response to question a (i) should be given in context and written using a complete sentence.

Question 5

This was a question in two parts. The first part was a goodness of fit test for a discrete distribution based on a set of ratios. There were many correct responses to this question although some candidates appeared unfamiliar with this general type of distribution and attempted to fit the data to other discrete distributions such as the binomial distribution. Candidates who find it difficult to phrase the null hypothesis should use the suitable phrase or sentence given in the question.

The second part of this question tested the candidates' knowledge of the rectangular distribution. A few excellent solutions were seen but very few candidates managed to gain full marks on part (b). The use of the probability density function to describe the distribution seemed unfamiliar to some candidates and they failed to state the correct value of k although the calculation of the mean and the standard deviation in (ii) was generally successfully completed. Many candidates failed to realise that the interval was two standard deviations in width when calculating the probability in (iii). In part (iv) , candidates were required to appreciate that there were, in total, 10 threads in the kit and that therefore it was necessary to calculate $1 - (0.75)^{10}$.

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.

UMS conversion calculator