Version 1.0

**General Certificate of Education (A-level)
June 2012**

Statistics **SS06**

(Specification 6380)

Statistics 6

Report on the Examination

General

Most candidates displayed a sound knowledge of the specification and managed to attempt all questions within the allocated time. Hypotheses were generally stated correctly but interpretation of results or conclusions in context still cause problems for many candidates. Intelligent use of graphics calculators was seen and some candidates referred successfully to p values in the conclusion to hypothesis tests.

Question 1

Candidates tended to muddle control and experimental groups and, in part (c), quoted 'randomised block', the experimental design, rather than the technique which should be used for analysis.

Question 2

Part (a) was well answered although many candidates did not refer to 0.05 or to meeting the requirement. Comments in part (c) were often too vague or unclear to gain marks and the OC was often plotted from 2 points rather than from all available information.
Part (d) pleasingly resulted in many candidates scoring full marks for this double sample scheme and some intelligent comments were seen.

Question 3

In part (a), many candidates evaluated the test statistic incorrectly as their hypotheses were inconsistent with their differences. Differences +7, +13 .... relate to H_0: μ_d = 5,
H_1: μ_d > 5
         whereas the differences -7, -13, ... relate to H_0: μ_d = -5, H_1: μ_d < - 5
Conclusions were frequently incorrectly worded and it is probably safer to conclude that the evidence supports the claim being correct rather than allowing the 'at most 5 grams more' to confuse the issue.
Any assumptions to be made should be stated in the context of the question rather than simply stating 'normal' or 'random'.
Part (b) was successfully attempted by the majority of candidates indicating that the synoptic requirement for candidates to also be able to use the distribution-free tests met in SS03 in this module is well understood.

Question 4

Most candidates gained full marks in part (a) with only a small minority not knowing how to use the D values. However, in part (b), few candidates identified that the mean of sample 10 fell between the upper warning and action limits and therefore it would be necessary to take another sample immediately.
Part (c)(i), a straightforward Normal probability, was done badly but candidates did well in part (c)(ii) with many correctly comparing 6σ with the width of the tolerances.

Question 5

Candidates generally seemed comfortable with both one-factor and two-factor ANOVA.
In part (a)(ii) candidates rarely identified that the mean satisfaction score was higher for those aged 50 and over than for those aged 20-29 years .
In part (b), the most common error was to allocate degrees of freedom incorrectly. It is useful to refer to between ss as 'between sexes' and 'between sports' rather than using 'between rows' and 'between columns' as it is clearer that 'between sexes' has df 1 and 'between sports' has df 2.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the Results statistics page of the AQA Website. UMS conversion calculator www.aqa.org.uk/umsconversion