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General Certificate of Education

Mathematics 6360

MS2A Statistics 2A

Report on the Examination

2008 examination - June series

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Written Component

General

It was pleasing to see some excellent solutions to many of the questions on this final paper.

Question 1

Although this first question provided most candidates with a good start, there were some who, in part (a), either failed to state any hypotheses or who thought that the null hypothesis should indicate 'an association', rather than 'no association', between the incidence of asthma and the volume of traffic. The application of Yates' correction was not always seen and neither sometimes was a sensible conclusion in context. In part (b), the question did **not** ask, as some candidates thought, for a comparison with the children who lived in an area where the volume of traffic was light. Consequently, the required response "More than expected had asthma" was not always seen.

Question 2

The majority of candidates managed to complete correctly parts (a), (b) and (c)(i) but some could only give the correct answer to part (a), apparently finding the remainder of the question beyond them. In part (c)(ii), all candidates failed to realise that $\mathrm{P}\left(Y \geq 1 \middle| X < 6\right) = \mathrm{P}\left(Y \geq 1\right)$, and consequently no correct answers were seen.

Question 3

The majority of candidates gained very good marks on this question. Loss of marks was usually due to candidates stating the hypotheses as "$\mathrm{H}_0: = 34.5$ and $\mathrm{H}_1: \neq 34.5$", which is not acceptable and gained no marks, or giving a conclusion not in context.

Question 4

The majority of candidates gained fewer than half marks for their answers to this question. The loss of marks was usually due to candidates' inability to calculate s correctly, using $z = 2.5758$ instead of $t = 3.250$ and/or making an incorrect comment in part (a)(ii).

Question 5

This question proved to be a very good source of marks for most candidates. However, there were some who either did not state an assumption or did not really know what assumption they had actually made. This was the only mark lost on this question by almost half of the candidates. Other candidates either stated the hypotheses incorrectly, used $z = 1.6449$ or failed to give a conclusion in context.

Question 6

Candidates generally gained good marks on this question. Some could have done better in part (a)(i) had they stated the value of the standard deviation having found correctly that $\mathrm{Var}\left(Y\right) = 100$. Part (a)(ii) was well answered with $\mathrm{E}\left(C\right) = 255$ often seen. Marks were lost by some candidates in part (b) for using $\mathrm{Var}\left(T\right) = 0.4^2 \times \mathrm{E}\left(X\right)$.

Question 7

Although there was one fully correct solution seen to this question, the majority of candidates could not cope with part (c). Consequently this was the worst answered question on the paper. In part (a), $\mathrm{F}\left(0\right) = \dfrac{1}{k+1}$ was all that was required but this seemed to be beyond some

candidates. In part (b)(i), candidates attempted to use the relationship $\mathrm{f}(x) = \frac{\mathrm{d}}{\mathrm{d}x}\left(\mathrm{F}(x)\right)$ in order to gain the required given answer. However, attempts at sketching the graph of f in part (b)(ii) were disappointing.

Coursework Component

There were very few scripts submitted for this final series of Statistics 2 coursework. No meaningful feedback can be given based on this small sample.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the **Results statistics** page of the AQA Website.