NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

Scholarship, 2005

Statistics and Modelling
93201

National Statistics

Assessment Report

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National Statistics

No. Scholarship Results	Results			
370	**Outstanding**	**Scholarship**	**Scholarship**	
	No. Awards	% of L3 Cohort	No. Awards	% of L3 Cohort
	50	0.4%	320	2.5%

Commentary

The standard of candidates' scripts was about the same as last year, with a cut-off point occurring at about the same level.

Overall:
- Handwriting was hard to read. Presentation of work was genuinely poor.
- Candidates should write concisely and to the point, as this is critical in effective statistical reporting. Answers should be in context.
- Judgments need to be made regarding how many significant figures are appropriate in an answer.
- Candidates should be familiar with the meaning of sketch as opposed to plot.
- R^2 needs to be used and interpreted appropriately.
- Thinking skills were needed in the time series question and to a lesser extent in the bi-variate data question.

Candidates gaining Scholarship
These candidates could communicate clearly and concisely and knew the basics well, especially in the construction and interpretation of confidence intervals. High level critical thinking was demonstrated ably in Questions 2(a), 3, 4(e) and 4(g). In particular Questions 2(a) and 3 proved very challenging and were well done by the top students. The reliability of predictions was fully analysed.

Effective communication was demonstrated throughout Question 4 and in Question 6. The ability to apply skills and flexible thinking to unfamiliar situations was demonstrated in Question 1(c).

The linear programming question was done well and the conditional probability question was handled better than in 2004.

The simultaneous equations question, Question 5, was done well in all aspects of solving, modelling and interpretation.

Candidates not gaining Scholarship

Overall, skills were lacking in terms of careful reading and interpretation of a question. This led to difficulty both in the interpretation of answers and in relating answers to the particular question objective.

The following difficulties were identified:

Question 1:
Candidates had great difficulty in dealing with statements like "no more than three mince pies will be sold for every steak pie" and also in identifying a range of possible solutions with their associated integer solutions.

Question 2:
The normal approximation was used by many candidates instead of the *Poisson* in Questions 2(b) and (3).

Question 3:
The confidence interval for the differences in means was not rounded, with monetary values not given by many candidates. In addition the confidence interval wasn't interpreted correctly for 'significantly more'.

Question 4:
This question wasn't answered correctly in many places eg Question 4(a). Key question phrases like "by reference to the scatter-plot" were ignored by many in their answers. Many answers contained too much irrelevant information. Candidates were unable to make B the subject of the formula in Question 3(b). Difficulties in commenting on validities of predictions were compounded by candidates being too verbose. There were repeated comments in Question 4(g) and many didn't look at the full picture when answering this part.

Question 5:
In Question 5(b) many didn't comment on the owner's decision. Some candidates demonstrated incorrect setting up of the equations in (a).

Question 6:
Candidates did not communicate clearly and concisely. Many displayed inability in describing a graph. The sales profit concepts were confused in some cases. Many were unable to calculate forecasts correctly, with the seasonal effect not taken into consideration. Many wrote more than one page, which meant they tended to give too much unnecessary information**.**