Mathematical Methods: Unit 4 Coursework

GENERAL COMMENTS

The Study Design describes the tasks that were to be undertaken by students for the school-assessed coursework in Unit 4. These were to be a part of the regular teaching and learning program for Mathematical Methods Unit 4. Further advice and support material was provided in the *Assessment Guide Revised VCE 2000: Mathematics* and the *Revised VCE Studies 2000 Implementation Resource Kit*.

For Unit 4, students were to complete two separate analysis tasks. The scope of the task is described in the Study Design. These analysis tasks were expected to be:

- short items conducted mainly in class over several periods
- in the form of one of the four types presented in the Study Design
- one of the tasks was expected to be related to the Statistics and Probability area
- the two tasks were expected to be different in type
- Outcomes 1 and 2 were to be covered by both tasks
- the use of technology was to be covered across the two tasks.

Overall, the material developed by most schools conformed to the requirements.

Set tasks

Most schools adhered to the requirements elaborated in the Study Design, and the advice given in the Assessment Guide was used extensively. There were a number of examples of tasks that had been set by teachers that drew in ideas and approaches from previous CAT material. The use of analysis tasks based on material drawn from past CAT 3 examinations was a useful approach in developing these tasks. There were creative modifications to suit the purposes of the task, and these enabled students to demonstrate achievement of the three outcomes.

There was a wide variation in the actual tasks set, although many teachers chose similar types of options for their analysis tasks. Not surprisingly, typical examples were not as common as with the application tasks used in Unit 3, but a number of similar tasks were utilised, and the support material had clearly been helpful.

It was expected that the task would be completed mainly in class over several periods. It was evident that most students did complete the task in an appropriate amount of class time, and that the tasks themselves were pitched at a suitable level for students of Mathematical Methods Units 3 and 4.

There was some uncertainty surrounding the appropriate formulation of an item response analysis task. It was not uncommon for teachers to employ multiple-choice tests, thinking that these constituted 'item response'. Whilst a set of multiple-choice questions could form the *basis* for item response analysis, it was expected that students would be given the opportunity to demonstrate their ability to **analyse** the relationship between the question and the alternative responses. Questions and the alternatives need to be thoughtfully devised to provide suitable opportunity for this to take place.

Some creative examples were in evidence, but on the whole, the use of this option was not well developed. It was expected that students be required to describe **how** and **why** they have chosen to select a given response. Some common ways of achieving this are as follows:

- require students to give reasons why each alternative given is either correct or incorrect
- require students to select some of the alternatives that can be compared as part of the solution process
- detail some or all of a solution process and have students describe the suitability of this process
- explain what the errors involved in a particular alternative are
- vary the question to produce a particular alternative as the correct response.

As was the case with Unit 3 coursework, logbooks were not always in evidence, but it is considered appropriate for students to complete tasks in a special purpose booklet where the tasks and the space for working is provided. However, the use of such booklets should not unduly prescribe the form of student responses.

There was some evidence that a few teachers used a 'follow up' test as a component of their assessment for the analysis task.

This is not appropriate, as the result for the task should be based entirely on the work produced for the analysis task.

The use of technology was rarely not in evidence, although at times not always explicit. It is recommended that all tasks have components that rely on, and require the use of, technology. Given that the tasks were completed mainly in class time, not surprisingly, graphics calculators appeared to be the most common technology used by students.

Teachers are reminded that one task must address the area of study (Probability and Statistics) and although this was almost always the rule, some exceptions were identified.

There was evidence that most teachers used outcome based assessment, and that many had spent time carefully constructing marking schemes that met the weighing of marks for outcomes and criteria. It appeared that most teachers had used the Assessment Guide. Teachers should, in attending to the outcome-based nature of this assessment, have a clear outline of the processes that they have used.

It is important to ensure that students know and understand the type of task they are to complete, and the criteria by which it will be assessed. It is anticipated that most teachers may have done this verbally, or before the task took place, but it is desirable for this information to be clearly laid out in the introduction to the task.

As part of feedback to students, sample solutions and expected responses should be used to illustrate the use of criteria for assessment.