THE OPEN UNIVERSITY OF SRI LANKA

MASTER OF ARTS IN TEACHER EDUCATION – PART II

FINAL EXAMINATION – 2006

PME 3296 – TEACHING OF MATHEMATICS AT SECONDARY LEVEL

DURATION : THREE (03) HOURS

DATE : 25th May 2006 TIME : 10.00 a.m. – 1.00 p.m.

Answer any three (3) questions only.

01. Most of the secondary level mathematics lessons could be taught using the problem solving method.

i. What are the main steps involved in this method.

(6 marks)

ii. Describe how you would teach a selected mathematics topic from the secondary school curriculum, using this method.

(9 marks)

iii. Discuss the merits and demerits of problem solving method in teaching mathematics at secondary level.

(9 marks)

iv. Explain how you would use questioning as a technique to support a lesson taught using problem solving method.

(9 marks)

02. i. Describe the essential features of the ideas of Piaget, Bruner, Skemp and Diene with regard to the development of mathematical concepts of children at different ages.

(5x4=20 marks)

ii. Explain how these ideas are used in teaching mathematics at secondary level.

(13 marks)

03. i. What is it meant by doing mathematics

(6 marks)

ii. Explain how group activities could be used as an effective technique for getting students actively involved in doing mathematics.

(9 marks)

iii. Describe briefly the main features that students should develop, and main behaviours patterns that they should identify in group work.

(9 marks)

iv. Explain the steps that you should take to emerge the above behavioural patterns in doing a mathematics lesson.

(9 marks)

04. i. Why it is important for a mathematics teacher to know the 'nature of mathematics'.

(13 marks)

ii. How can he/she use this knowledge to make mathematic an interesting subject at secondary level?
Explain the above using practical examples.

(20 marks)

05. Write short notes on any four (04) of the following.

i. Benefits of relational understanding in mathematics.

ii. Constructivist views of learning mathematics

iii. Objectives of teaching Mathematics at secondary level.

iv. New trends in mathematics education

v. The effects of introducing combined mathematics subject at GCE (A/L)

vi. Development of mathematics in Hindu-Arabic era.

(8x4+1=33 marks)

06. "Mathematics is a science of pattern and order"

i. Do you agree with the above statement? Give evidence to support your view.

(20 marks)

ii. Contrast the above view with traditional school mathematics.

(13 marks)