



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2011/2012

**SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
MASTER OF SCIENCE**

ECT 531: NATURE AIM AND ROLES OF MATHEMATICS

DATE: Tuesday, 27th March 2012

TIME: 9.00 a.m. – 12.00 noon

INSTRUCTIONS:

ANSWER QUESTION ONE AND ANY TWO FROM QS. 2, 3 AND 4

1.
 - (a) Describe the three fundamental reasons for teaching mathematics. (6 marks)
 - (b) Teaching mathematics varies due to its dual nature. What is the dual nature of mathematics and how does this influence learning and teaching of the subject. (8 marks)
 - (c) Explain how you would differentiate a behaviorist oriented classroom from a constructivist oriented mathematics classroom. (8 marks)
 - (d) State three objectives of mathematics education and explain how each of the stated objectives links mathematics learning to national development. (8 marks)
2.
 - (a) The attribute of **utility** makes Mathematics an important subject of study in schools. Discuss how this attribute is exemplified at; student level, school level and at societal level. (6 marks)

- (b) Explain what you understand by the standards of an effective mathematics curriculum. (8 marks)
3. (a) Assessment should not be done **TO** students but rather it should be done **FOR** students. Justify the role of assessment of mathematics learning for national development based on your interpretation of this statement. (8 marks)
- (b) Discuss the strengths and limitations of the strategies used by Kenya National Examination Council in assessing students' mathematics learning outcomes. (7 marks)
4. (a) In your view, how would the integration of information technology in the teaching of mathematics support learning.
- (b) Generate an example of a mathematics lesson that can be used with the use of technology. Identify with justification in what areas of the lesson IT can be incorporated. Explain how different this lesson would be compared to one without integration of technology. (15 marks)
5. (a) Explain with examples how a teacher can incorporate mathematics across the curriculum to create an active learning environment. (8 marks)
- (b) "Mathematics curriculum should not be determined by the text book; rather the text book should be selected on the basis of prior curriculum decisions". Discuss. (7 marks)

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