



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2014/2015

DIGITAL SCHOOL OF VIRTUAL AND OPEN LEARNING

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
EDUCATION

ECT 302: MATHEMATICS METHODS

DATE: Monday, 22nd December, 2014

TIME: 8.00 a.m. – 10.00 a.m.

INSTRUCTIONS:

Answer question **ONE** and any other **TWO**.

Q.1 The Mathematics teacher at Ebukambuli Secondary School set the following question in the form 4 post mock examination.

“Two railway stations P and R are such that R is 500 km. due east of P. Two trains A and B leave stations P and R respectively at the same time. Train A moves at 360 kph on a bearing of N 30° E and train B moves at a speed of 240 kph on a bearing of N 45° W. The two trains stop after 1½ hours.

Using a scale of 1:10⁷

- i) Show the relative positions of the two trains after 1½ hours.
(6 marks)
- ii) Find the distance between the two trains after 1½ hours.
(2 marks)
- iii) Find the true bearing of A from B after 1½ hours. (2 marks)”

You are required to

- a) Solve the problem (10 marks)
- b) Prepare a marking scheme and allocate marks for the question. (10 marks)
- c) Indicate steps where candidates are likely to make errors. (6 marks)
- d) Explain what you would do to address these errors. (4 marks)

- Q.2
- a) Name any **four** resources (other than the textbook and the calculator) for teaching Mathematics. (4 marks)
 - b) Explain **four** criteria for selecting a Mathematics textbook for use as the main class text. (12 marks)
 - c) Explain any **two** demerits of using a calculator in teaching/learning Mathematics. (4 marks)
- Q.3
- a) Using a named secondary school topic, explain how the Piagetian theory on the psychology of learning can be applied by a teacher in teaching the topic. (12 marks)
 - b) Explain how a Mathematics teacher can apply the concepts of conditioning and transfer in teaching Mathematics. (8 marks)
- Q.4
- a) What is problem solving? (3 marks)
 - b) With the use of a mathematical content, explain the application of Polya's theory on problem solving. (12 marks)
 - c) Discuss **one** characteristic of a good problem solver. (5 marks)
- Q.5
- Discuss any **four** contemporary issues in teaching and learning of mathematics. (20 marks)