



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2014/2015
DIGITAL SCHOOL OF VIRTUAL AND OPEN LEARNING
SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
EDUCATION
ECT 302: SUBJECT METHODS - MATHEMATICS

DATE: SATURDAY 2ND MAY 2015

TIME: 8.00 A.M. – 10.00 A.M.

INSTRUCTIONS: Answer **THREE** questions including Question **ONE**

QUESTION ONE [COMPULSORY] [30 MARKS]

1. The following question was set for a Form Two class.
- ‘Last year when the wholesale price of sugar was Sh.36 per kg and that of tea sh.150 per kg, Mama Chai bought x kg of sugar and y kg of tea and spent Sh.15,000. This year the wholesale price of sugar has increased by 10% while that of tea has increased by 20%. Mama Chai now calculates that she will require Sh.2100 more to buy the same stock as she did last year.’
- a) Write an expression in terms of x and y for the amount Mama Chai spent in stocking her kiosk:
- (i) Last year (1 mark)
 - (ii) This year (1 mark)
- (b) How much sugar and tea did Mama Chai require to stock her kiosk this year. (6 marks)
- (c) Determine the percentage increase in the cost of stocking the kiosk. (2 marks)
- Required:
- (a) Solve the problem. (10 marks)
 - (b) Allocate marks on a marking scheme. (10 marks)
 - (c) Mention steps where candidates are likely to make mistakes. (6 marks)
 - (d) Explain what you would do to address the mistakes highlighted. (4 marks)

QUESTION TWO [20 MARKS]

- (a) What is an instructional objective? Give two examples in Mathematics. (4 marks)
- (b) The teaching of Mathematics can be through inductive and deductive approaches.
Explain each approach giving relevant examples. (6 marks)
- (c) Prepare 15 minutes lesson plan for the topic of linear equations. (10 marks)

QUESTION THREE [20 MARKS]

- (a) Enumerate Five reasons that make the use of resources necessary in a Mathematics classroom. (5 marks)
- (b) Discuss the guidelines to follow for effective utilization of Mathematics textbooks. (5 marks)
- (c) Assessment is vital in teaching Mathematics. Explain how you use Bloom's taxonomy cognitive domain levels to set a Mathematics examination. (8 marks)
- (d) Mention two drawbacks of the use of a calculator in Mathematics. (2 marks)

QUESTION FOUR

- (a) Distinguish between teaching through problem solving and teaching about problem-solving. (4 marks)
- (b) Using an appropriate example, stage and explain George Polya heuristics for problem-solving. (8 marks)
- (c) Discuss the contribution of Jerome Brunner in teaching Mathematics in secondary school in Kenya. (4 marks)
- (d) What do we mean by professionalism in Mathematics teaching? (4 marks)

QUESTION FIVE

- (a) State the objectives and teaching activities you would include during a lesson plan to teach linear equations. (6 marks)
- (b) Discuss briefly the dual philosophy-absolutist and fallibilist about Mathematics. (4 marks)
- (c) Identify three objectives of Mathematics at secondary school and explain how you help your students to achieve them. (6 marks)
- (d) State the three principles of an effective Mathematics curriculum. (4 marks)
