



UNIVERSITY REGULAR EXAMINATIONS

2014 /2015 ACADEMIC YEAR

3rd YEAR 1ST SEMESTER EXAMINATIONS

(MAIN EXAMINATION)

FOR THE DEGREE OF BACHELOR EDUCATION (ART)

COURSE CODE: ESM 323

COURSE TITLE: PHYSICS EDUCATION

DATE: 15th January 2015

TIME: 3.00-5.00 p.m

INSTRUCTIONS TO CANDIDATES:

Answer question ONE and any other TWO questions in section B

SECTION A

Question 1 (compulsory)

- (1) Briefly discuss any two emerging issues that have been incorporated in the revised secondary school physics curriculum in Kenya (4 marks)
- (b) The teaching of physics involves an integrated use of the following techniques
- (i) Group discussion
 - (ii) Use of examples
 - (iii) Stimulus variation
 - (iv) Question and answer
- State two characteristics of each technique (8 marks)
- (c) Outline the qualities of a good physics teacher (4 marks)
- (d) How can the study of physics contribute to industrial development? (3 marks)
- (e) Identify three hazards likely to occur in a physics laboratory and for each state the required precautions (6 marks)
- (f) Why must a physics teacher prepare a lesson plan for every lesson taught?(5 marks)

SECTION B: ANSWER ANY TWO QUESTIONS

Question 2

- (a) Briefly explain how knowledge from a named content area in secondary school physics syllabus may contribute to national development (5 marks)
- (b) How can each of the following processes of generating scientific knowledge be implemented at secondary school level?
- a) Performing experiments (3 marks)
 - b) Data collection and presentation of results (3 marks)
 - c) Observation (3 marks)
- (c) Outline factors that a secondary school physics teacher need to consider in order to plan for a successful and effective physics class experiment (6 marks)

Question 3

- a) Using a named concept in Secondary School Physics, explain how you can use the constructivist approach to teach it (10 marks)
- b) Distinguish between
- (i) The Heuristic and Expository approaches to teaching (4 marks)
 - (ii) Didactic and discovery approach (4 marks)

- c) In deciding which method is appropriate to teach a particular lesson, a teacher must consider certain aspects of his/her teaching situation. List four such considerations (2 marks)

Question 4

- (a) What is a lesson plan? (2 marks)
- (b) State four characteristics of lesson objectives (4 marks)
- (c) Prepare a 40 minutes lesson plan for a named content area in the Secondary School physics (14 marks)