



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

INSTITUTIONAL BASED PROGRAMME (IBP) – DECEMBER SESSION

EXAMINATION FOR THE DEGREE OF MASTER OF EDUCATION

**ECT 528: STRATEGIES FOR COURSE DEVELOPMENT ANALYSIS AND
ASSESSMENT IN PHYSICS EDUCATION**

DATE: Friday, 4th May, 2012

TIME: 9.00 a.m. – 12.00 p.m.

INSTRUCTIONS:

Answer any **THREE** questions.

- Q.1 Inductive strategy is preferred in Physics instruction especially at the Secondary School level despite the challenges.
- a) Outline the main merits of inductive strategy in Physics lessons.
 - b) Using an example, describe how you would conduct a practical using an inductive strategy.
 - c) You are given the following Expository-Heuristic Continuum Matrix.

Determine which segment (ABCD) can represent.

- i) Heuristic – Inductive Strategy
- ii) Expository – Deductive Strategy.
- iii) Explain why it is not possible to have a matrix for the “Inductive – Deductive” Strategy.

(23 marks)

Q.2 Problem solving is one of the preferred methods of instruction in Physics. A teacher sets up a problem for students to investigate the relationship between the thickness of a wire and its resistance. The following model (diagram) was used:

- a) Give two merits of using problem solving method in Physics as compared to other heuristic methods.
- b) Bright students are likely to predict the relationship before performing the experiment. Determine the basis of the prediction and indicate how this can facilitate investigation.
- c) The model (diagram) uses some symbols to represent devices. What are the likely obstacles that learners can face when interpreting the circuit.
- d) To obtain accurate readings, a very sensitive galvanometer is needed. Such

a galvanometer, however, is easily damaged if contact is made on the wire AB far from the balance point. Suggest what can be done to protect the galvanometer.

(23 marks)

Q.3 A Physics laboratory is a key resource in the instruction of the subject.

- a) Outline the main instructional roles of a School Physics laboratory.
- b) A Physics laboratory design should emphasize flexibility and safety. On this basis:
 - i) describe the design of the work-tables.
 - ii) Identify and explain two situations in a Physics laboratory that will require attention on safety during instruction.
- c) Some small schools are faced with a situation where there is no Physics laboratory. Suggest some arrangement you would recommend to such schools for purposes of teaching Physics with some measure of practical activities.

(23 marks)

Q.4 “Assessment in Physics can be formative or summative”.

- a) Distinguish between formative and summative assessment by highlighting their functions in instruction.
- b) Determine the modes used in
 - i) formative assessment
 - ii) Summative assessment
- c) The National Examination at Form 4 uses a set of papers. Outline the role of the following:
 - i) The practical paper.
 - ii) The short-answer questions paper.

(23 marks)

Q.5 Suppose you are given an opportunity to address Physics teachers on the topic “Qualities of a good Physics teacher.”

- a) Outline four major qualities you would emphasize.
- b) What are the implications of these qualities (in (a)) to the training of Science teachers in general.
- c) Indicate two challenges that can make attaining high quality science teachers in Kenya remote.

(23 marks)