



**MASENO UNIVERSITY**

**UNIVERSITY EXAMINATIONS 2015/2016**

**THIRD YEAR FIRST SEMESTER EXAMINATIONS FOR THE  
DEGREE OF BACHELOR OF EDUCATION SCIENCE WITH  
INFORMATION TECHNOLOGY**

**MAIN CAMPUS**

**ECT 335: SPECIAL METHODS OF TEACHING PHYSICS**

Date: 14<sup>th</sup> January, 2016

Time: 8.30 - 10.30 am

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INSTRUCTIONS:

- Answer questions ONE and any other TWO questions.

### QUESTION ONE

- (a) (i) Explain the strengths and weaknesses of *Empiricism* as an epistemological theory of acquiring scientific knowledge. (4 marks)
- (ii) Show how the weaknesses may be overcome in the teaching-learning process. (4 marks)
- (b) (i) Discuss the role of the teacher **during** a class experiment in Physics. (5 marks)
- (ii) Give reasons to support the arguments that
- I. Long recipe type experiments are less useful. (3 marks)
- II. Practical be integrated with theory in the same lesson, rather than presenting the two separately (3 marks)
- (c) Justify the use of a combination of teaching methods, rather than one, in the teaching of Physics. (3 marks)
- (d) Describe how you would meaningfully implement **demonstration** method in a class with a large student enrolment. (4 marks)
- (e) Outline the general steps you would take to effectively use group discussion in a Physics lesson. (4 marks)

### QUESTION TWO

- (a) Explain **five** goals of science education. (10 marks)
- (b) With the aid of suitable examples, show how knowledge of Physics contributes to the understanding of other subjects in the secondary school curriculum. (10 marks)

### QUESTION THREE

- (a) Critically examine the case for offering Physics as a separate subject in the secondary school curriculum. (12 marks)
- (b) Explain what you understand by **integration** and **infusion** of emerging issues? (4 marks)
- (c) Use **two** suitable examples to illustrate how you would infuse environmental issues in a Physics lesson. (4 marks)

#### QUESTION FOUR

- (a) One of the greatest impediments to the teaching and learning of Physics is negative attitude. Explain the bases (causes) of negative attitude and describe how it (negative attitude) is usually manifested. (15 marks)
- (b) Describe suitable remedies you would use as a teacher to reverse learners' negative attitudes towards Physics. (5 marks)

#### QUESTION FIVE

The following statement is a specific objective drawn from the secondary school Physics syllabus.

*By the end of the topic, the learner should be able to describe experiments to investigate factors effecting pressure in fluids.*

- (a) Prepare a 40-minute lesson plan that you would use to achieve this objective in a Form 1 class. (13 marks)
- (b) Prepare a worksheet that would guide the learner through a suitable activity aimed at achieving this objective. (7 marks)

