



MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018

THIRD YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF EDUCATION & COMMUNICATION TECHNOLOGY WITH INFORMATION TECHNOLOGY

MAIN CAMPUS

ECT 335: SPECIAL METHODS OF TEACHING PHYSICS

Date: 20th February, 2018

Time: 3.30 - 6.30pm

INSTRUCTIONS:

- Answer Question ONE and any other THREE



QUESTION ONE

- (a) (i) Explain one strength and one weakness 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) Describe 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 implement **demonstration** method in a large class of students. (4 marks)
- (e) Outline the general steps you would take to effectively use group discussion method in a Physics lesson. (4 marks)

QUESTION TWO

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

QUESTION THREE

- (a) Justify the case for offering Physics as a separate subject in the secondary school curriculum. (5 marks)
- (b) Explain what you understand by **integration** and **infusion** of emerging issues? (4 marks)
- (c) Use three suitable examples to illustrate how you would infuse environmental issues in a Physics lesson. (6 marks)

QUESTION FOUR

- (a) One of the greatest impediments to the teaching and learning of Physics is negative attitude. (i) Explain the bases (causes) of negative attitude (6 marks)
- (ii) Describe how negative attitude is usually manifested. (4 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)

