



MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF EDUCATION

DEPARTMENT OF EDUCATIONAL COMMUNICATION TECHNOLOGY AND EARLY CHILDHOOD EDUCATION

EXAMINATION FOR DOCTOR OF PHILOSOPHY IN EDUCATION

ECT 917: FOUNDATIONS AND PERSPECTIVES ON SCIENCE EDUCATION.

DATE: 5/5/2019

TIME: 8:00 – 11:00 PM

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO OTHERS.

1. a) Critically examine the inter-relationship between **philosophy of science, cognitive Science, and science education.** (12 marks)
- b) Explain **ways** in which the **a learning cycle can be applied to two named Practical Activities in your subject of specialization.** (12 marks)
- c) Explain **three ways** in which **Experimentation differs from Speculation.** (6 marks)
2. Explain and illustrate how **science is distinguished from Religion and Metaphysics.** (15 marks)
3. **Some Scientists have proposed that the goal of science is to: generate the most powerful research programme (lakatosianism); appreciate the historical reality and change our view of nature (kuhnneanism); generate solutions to human problems. (Pragmatism); contribute to technological development (modernism).**
Which of these views would you recommend for Science Education and why? (15 marks)
4. Discuss any **five major purposes of teaching Science** and how they can be actualized in the classroom. (15 marks)
5. How would you use the Vee-diagram as a tool to plan for a practical activity with reference to a named topic in the curriculum of your special science subject. (15 marks)