

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATIONS**

**FIRST YEAR EXAMINATION FOR THE DEGREE OF DOCTORATE  
OF PHILOSOPHY IN APPLIED STATISTICS**

**MATH 991/990: ADVANCED RESEARCH METHODOLOGY**

**STREAMS: PhD**

**TIME: 3 HOURS**

**DAY/DATE: TUESDAY 13/8/2019**

**8.30 A.M. – 11.30 A.M**

**INSTRUCTIONS**

- Answer any **THREE** questions.
- Do not write anything on the question paper.

**QUESTION ONE (20 MARKS)**

- (a) Discuss the importance of intellectual property rights. (8 marks)
- (b) Using hypothetical findings, write down a patents for it. (12 marks)

**QUESTION TWO (20 MARKS)**

Using illustrations, where applicable, discuss the sampling design approaches.

**QUESTION THREE (20 MARKS)**

Discuss the relationship between research and theory.

**QUESTION FOUR (20 MARKS)**

A researcher would like to carry out a long term experiment involving eight types of bacteria such that there are three levels of nutrient media (NM) and three levels of temperatures (T). The researcher is not sure of the type of design to use in this experiment. Advice the researcher, clearly indicating how he can shorten the duration of the experiment, the model, hypotheses and possible analysis results and why?