

**TECHNICAL UNIVERSITY OF MOMBASA**  
**FACULTY OF ENGINEERING**  
**DEPARTMENT OF ELECTRICAL AND ELECTRONICS**  
**DEGREE OF BACHELOR OF SCIENCE IN ELECTICTICAL AND ELECTRONICS**  
**ENGINEERING**  
**END OF SEMESTER EXAMINATION FOR JANUARY – APRIL 2016 SEMESTER**  
**HRD 2114 RESEARCH METHODS**

**PAPER A**

**Instructions: Answer Question One and any other Two Questions.**

**Time: 2 hours**

**Question One**

You have been commissioned by the Ministry of Internal Security, to look into issues that have contributed to the high rate of elections malpractice in the past elections.

- a)
- i) Come up with an appropriate research topic (3 marks)
  - ii) Formulate the general objective and three specific objectives that will guide you in your investigation. (8 marks)
  - iii) Formulate Research questions that will help in the investigation (6 marks)
- b)
- i) Discuss the principle research methods (9 marks)
  - ii) Explain the basic principles of scientific research? (4 marks)

**Question Two**

- a)
- (i) Differentiate between primary and secondary data (4 marks)

(ii) Briefly discuss the advantages and disadvantages of secondary data (4 marks)

b) Explain what you understand by a Questionnaire and state some characteristics of a good questionnaire (12marks)

### **Question Three**

a) Explain the difference between the following terms:

- (i) Sampling frame and sampling (4 marks)
- (ii) Probability and non-probability sampling (4 marks)

b) Explain what is a research hypothesis? State the qualities of a good research hypothesis (12 marks)

### **Question Four**

Describe the structure of an academic proposal (20 marks)

### **Question Five**

a)

Explain the meaning of the following in the context of Research design

- i) Independent and dependent variables (4 marks)
- ii) Experimental and control groups (4 marks)

b)

Explain the following measurement scales as used in research with a clear example in each

- i) Nominal scale
- ii) Ordinal scale
- iii) Interval scale
- iv) Ratio scale

(12 marks)