



*(Knowledge for Development)*

**KIBABII UNIVERSITY**

**(KIBU)**

**UNIVERSITY EXAMINATIONS  
2020/2021 ACADEMIC YEAR**

**END OF SEMESTER EXAMINATIONS  
YEAR ONE SEMESTER ONE EXAMINATIONS**

**FOR DOCTOR OF PHILOSOPHY IN  
(INFORMATION TECHNOLOGY)**

**COURSE CODE: PIT 912**

**COURSE TITLE: ADVANCED RESEARCH METHODS IN  
COMPUTING**

**DATE: 26/11/2021 TIME: 2.00 P.M.-5.00 P.M.**

**INSTRUCTIONS TO CANDIDATES  
ANSWER QUESTION ONE AND ANY OTHER TWO (2) QUESTIONS**

**QUESTION ONE (COMPULSORY) [20 MARKS]**

- a) Researchers in social sciences have an obligation to protect people from being managed and manipulated in the interest of research. Using relevant examples, give **FOUR (4)** reasons in support of the above statement. [8 marks]
- b) Using appropriate examples outline the difference between the following terms as used in research
- i) Independent variable [3 marks]
  - ii) Dependent variable [3 marks]
  - iii) Confounding variable [2 marks]
- c) Explain what is meant by 'operationalising' variables? Suggest two ways in which 'authentication' could be operationalised. [4 marks]

**QUESTION TWO [20 MARKS]**

- a) Identify **TWO** difference between an experiment and correlation research [8 marks]
- b) Discuss randomization as used in research? [4 marks]
- c) Discuss the following terms as used in research using appropriate examples .
- i) Inductive reasoning [4 marks]
  - ii) Deductive reasoning [4 marks]

**QUESTION THREE [20 MARKS]**

- a) Outline **THREE** factors determine sample size? [6 marks]
- b) Describe **TWO (2)** advantages of conducting literature review [4 marks]
- d) Outline **TWO(2)** reasons for sampling in research [4 marks]
- e) Define an extraneous variable and briefly discuss how it can affect the outcome of a research. [4 marks]

**QUESTION FOUR [20 MARKS]**

- a) Suppose the state department of ICT has developed a new instrument for evaluating network performance in the company. Outline **THREE** empirical evidence would provide strong support for the validity of the scores resulting from this instrument. [6 marks]
- b) With relevant examples, outline **FIVE (5)** roles of research in IT. [10 marks]
- c) What is meant by a population in computing research? [4 marks]

**QUESTION FIVE [20 MARKS]**

- a) Discuss the process of data analysis in qualitative research, including exploring the data, developing themes from the data, coding data, and connecting themes. Describe also the role of the constant comparative method. **[6 marks]**
- b) With respect to his research topic, a postgraduate student in information technology was advised to choose between survey and experimental method in his research.
- i. Outline to him **THREE (5)** merits and **THREE (3)** demerits of experimental research. **[6 marks]**
  - ii. Describe to him **TWO (2)** difficulties that he would encounter through the use of questionnaires. For each difficulty described, suggest **ONE (1)** remedy. **[4 marks]**
- c) Outline **FOUR** types of Probability sampling techniques and for each technique briefly discuss suitability in a given scenario **[4 marks]**