



(Knowledge for development)

KIBABII UNIVERSITY

(KIBU)

**UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR**

**END OF SEMESTER EXAMINATION
YEAR TWO SEMESTER TWO EXAMINATIONS**

**FOR THE DEGREE OF BACHELORS OF SCIENCE
(INFORMATION TECHNOLOGY)**

COURSE CODE : BIT 224
**COURSE TITLE : RESEARCH METHODS AND TECHNICAL
WRITING IN COMPUTING**

DATE: 26/04/2023 TIME: 09.00A.M.-11.00A.M. 2HRS

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

- a) Explain any three reasons to why we contact research computing fields. [6 marks]
- b) Explain why you think it is necessary to cite and reference literature review when carrying out a research study. [6 marks]
- c) Read the extract below and use it to answer the questions that follow.

Kenya is making strides towards achieving the Sustainable Development Goals (SDGs). This has been seen through her efforts to embrace technology in all sectors of the economy. One sector that has made a major milestone is the education sector. Currently, there are several ways in which technology is affecting the direction of education.... When the government came into power in 2013, it promised to deliver laptops to standard one pupils in a bid to streamline the education sector with the ICT pillar of their manifesto. The distribution was done in 2016. The distributed devices are pre-loaded with content which includes interactive digital content for create one and two. You feel like the government missed out something on sustainability of the project including competent and skilled human resources in primary schools and lack of structure in case the curriculum may require update or changes. It is impractical for one to walk across the country updating the curriculum on each learners' tablet, this may easily create inconstancy.

Required:

- i. Formulate a research title based on the above scenario. [3 marks]
- ii. Formulate three research objectives to be used in this study. [2 marks]
- iii. If you were to carry out this research study, which research tools and techniques will you employ? [6 marks]
- iv. Design at least **THREE** research hypothesis for the study. [3 marks]
- v. Explain the sampling methods the researcher is likely to employ [4 marks]

QUESTION TWO [20 MARKS]

A student presented a study titled: *Technical factors and user personality as indicators of self-directed learning in universities*

Required:

- a) Identify and briefly explain the field in which the study belongs. [2 marks]
- b) Identify and briefly explain the solution and the problem domain of the study. [4 marks]
- c) Identify and briefly explain the study population. [2 marks]
- d) Discuss the research design(s) that is/are suitable for the study. [6 marks]
- e) List and briefly explain the likely techniques he used in collecting data for the study [6 marks]

QUESTION THREE [20 MARKS]

- a) In a presentation of a research proposal, a student was advised to make his objective **SMART**. Explain the implication of this phrase in relation to research work. [6 marks]
- b) Briefly describe how you would undertake the following aspects in research:
- i. Selection of probabilistic sample [4 marks]
 - ii. Data collection [4 marks]
- c) What is research ethics and how is it achieved? [6 marks]

QUESTION FOUR [20 MARKS]

- a) What is the meaning of a data collection tool? [2 marks]
- b) Explain how the following instruments can be used in collecting data in a computing research.
- i. Think aloud protocol [2 marks]
 - ii. Task analysis [2 marks]
 - iii. Simulation [2 marks]
 - iv. Software walk-through [2 marks]
- c) Discuss the various non- probabilistic sampling techniques that a researcher may use to select a sample from the population giving an advantage and disadvantage for each. [8 marks]

QUESTION FIVE [20 MARKS]

- a) Explain how the following activities may affect the findings of a study.
- i. Fabrication of data [5 marks]
 - ii. Plagiarism [5 marks]
- b) Explain the importance of conceptual designs in research. [10 marks]