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**KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**UNIVERSITY EXAMINATION, 2024/2025 ACADEMIC YEAR**  
**THIRD YEAR, FIRST SEMESTER EXAMINATION**  
**FOR THE BACHELOR OF BUSINESS & INFORMATION TECHNOLOGY**  
**KBI 2301 – COMPUTER MODELLING OF DECISIONS**

Date: 18<sup>TH</sup> April 2024  
Time: 8:30AM – 10:30AM

**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (30 MARKS)**

**Read the following excerpt carefully and answer the questions that follow**

In today's rapidly progressing world of modernization and digitalization, the introduction of technology in every field or sector is becoming crucial. Exciting technological advancements are happening every day, benefiting humans in every aspect of their lives. Education is one such field that is welcoming technology adoption positively. With the COVID-19 pandemic affecting people across the world, schools were closed as part of lockdown measures to contain the virus thereby disrupting academics. Educational institutions engaged virtually with students and teachers in the form of ICTs to continue with academics. With the role of technology becoming more significant than ever, technology adoption will become a new reality for teaching and learning processes.

**Required:**

- a) Suggest a suitable research topic for the above narrative (4 Marks)
- b) Identify four specific research objectives for the study (4 Marks)
- c) Formulate four research questions for the study (4 Marks)
- d) Describe any two sampling techniques and design that can be used in the study (4 Marks)
- e) What are characteristics of a good hypothesis. (4 Marks)
- f) Explain any four ethical issues that need to be considered in this study (4 Marks)
- g) Discuss the role of the literature review in such a study (6 Marks)

**QUESTION TWO (20 MARKS)**

- a) How would you ensure the reliability and validity of your research findings when conducting a study using qualitative research methods? (4 Marks)
- b) Using relevant examples Distinguish between primary, secondary and tertiary data sources as used in research work. (8 Marks)
- c) You wish to undertake research on how the city of Nairobi has changed over the years until present. Outline how you would undertake this research; identify the possible data sources, classify them as either primary, secondary or tertiary; how you would collect the data, and if secondary, give the source organization (8 Marks)

**QUESTION THREE (20 MARKS)**

- a) Differentiate between the following;
  - i) Research methodology and research methods (6 Marks)
  - ii) Stratified sampling and area sampling (6 Marks)
- b) List four factors that should receive the attention of the research in formulating a research problem? (8 Marks)

**QUESTION FOUR (20 MARKS)**

- a) Examine the following quantitative research question:  
“Do fifth grade students who participate in a supplemental daily calendar math program learn more math content as demonstrated on the Virginia SOLs than those who do not receive this supplementary math program?”
- i) Citing with reasons identify the independent variable? (4 Marks)
  - ii) Citing with reasons identify the dependent variable? (4 Marks)
- b) What are the key steps you would take to select the most appropriate research methodology for investigating a specific research problem in your field of study. (4 Marks)
- c) Data analysis and presentation is based on the stated objectives of the research study. Describe various modes of data analysis and presentation of research study (8 Marks)

**QUESTION FIVE (20 MARKS)**

- a) What strategies can be employed to optimize the design phase of the SDLC for efficiency and effectiveness (6 Marks)
- b) What are some common methodologies or approaches used during the design phase of the SDLC. (8 Marks)
- c) Recommend which methods you would prefer to use in collecting data meant for business investment research with reasons. (6 Marks)