INTERNATIONAL UNIVERSITY OF EAST AFRICA
'Learning to Succeed'

# FACULTY OF SCIENCE AND TECHNOLOGY

## END OF SEMESTER EXAMINATIONS - DECEMBER 2025

**PROGRAMME: MIT**
**YEAR/SEM: YEAR 1/SEMESTER 1**
**COURSE CODE: MIT715**
**NAME: RESEARCH METHODOLOGY**

**DATE:**
**TIME:**

**INSTRUCTIONS TO CANDIDATES:**

## SECTION A

*Attempt one question*

**Question 1:**

Scenario: Assessing the Influence of Online Learning Tools on Student Productivity

Background:

University students increasingly rely on online learning tools such as digital libraries, video lectures, course management systems, and discussion forums. David, a lecturer in the Faculty of Engineering, wants to examine how these tools influence students' productivity, class participation, and assignment completion rates.

Tasks:

(a) Define the term 'research problem' and formulate one for David's study. (6 marks)

(b) Identify the population and sample for this study and justify each. Give reasons for your answer. (4 marks)

(c) State any two hypotheses David could formulate for this study. (8 marks)

(d) Suggest an appropriate research design for the study and justify your choice. (8 marks)

(e) Explain any two limitations David might encounter when conducting this research. (6 marks)

(f) Formulate one major objective and 3 specific objectives for this study (8 marks)

**Question 2:**

Scenario: Evaluating Workplace Communication Strategies in a Manufacturing Firm

Background:

A large manufacturing company has introduced new communication strategies, including weekly briefing meetings, digital noticeboards, and internal messaging platforms. Grace, a human resource specialist, wants to investigate the effectiveness of these strategies in improving employee coordination, satisfaction, and workflow efficiency.

Tasks:

(a) List any 3 data collection tools that Grace could use in data collection and explain why each is appropriate for data collection. (8 marks)

(b) Identify and describe the dependent and independent variables in this study. (8 marks)

(c) Propose the major objective and three specific objectives that Grace could use. (8 marks)

(d) Suggest a suitable sampling technique and justify its use. (8 marks)

(e) State and explain two ethical issues Grace must consider while conducting this research. (8 marks)

## SECTION B

*Attempt a maximum of 3 questions.*

**Question 1:**

Describe the major components (chapters/sections) that should be included in a standard research report (20 marks)

**Question 2:**

(a) Discuss any three reasons why a literature review is essential before conducting this study. (6 marks)

(b) Describe how the student should organize the literature review using the independent and dependent variables of the study. (7 marks)

(c) Explain any three weaknesses in past studies that a researcher should look for when identifying gaps in the literature. (7 marks)

**Question 3:**

A researcher is conducting a study on how workplace environment, salary satisfaction, and leadership style influence employee turnover in private companies. She is required to conduct a detailed literature review before beginning her study.

(a) Explain the purpose of a literature review in a research study. (6 marks)

(b) Identify the three main sources of literature (preliminary, primary, secondary) and briefly describe each in relation to the researcher's study. (7 marks)

(c) Outline the key components that should appear in a well-structured literature review chapter. (7 marks)

**Question 4:**

Define the term **Research Design** and explain its primary purpose in the context of a research study. (04 Marks)

(b) Clearly define and explain the significance of the following terms as they relate to building a reliable Research Design: (16 Marks)

(i) dependent variable

(ii) Independent variable

(iii) Extraneous variables

(iv) Confounded relationship

**Question 5:**

Describe the major components that should be included in a standard research proposal (20 marks)

**Question 6:**

(a) Distinguish between **qualitative** and **quantitative** data with examples. ( 6 marks)

(b) Describe the **key characteristics** of each approach and explain the situations or conditions under which **one method may be preferred** over the other. ( 14 marks)

**Question 7:**

a) Describe the four characteristics of good measures and explain why each characteristic is important in data collection. (8 marks)
b) Distinguish between obtrusive and unobtrusive data collection methods, giving one example of each. (6 marks)
c) Explain why it is important to pre-test data collection instruments before use in the field. (6 marks)

**Question 8:**

a) Identify three common sources of secondary data and briefly explain each. (6 marks)
b) Discuss two advantages and two challenges of using available datasets in an evaluation. (8 marks)
c) Describe any two key issues that must be considered when using existing datasets. (6 marks)

**Question 9:**

(a) With examples, explain the difference between structured and semi-structured approaches for data collection ( 6 marks)

(b) Describe when a structured approach is most appropriate in data collection (8 marks)

(c) Explain the scenarios under which a semi-structured approach is more appropriate ( 6 marks)

**Question 10:**

a) Explain the criteria for identifying a suitable research problem. (6 marks)
b) Describe any three internal or personal criteria that influence the selection of a research problem. (6 marks)

(c) Describe the characteristics of well-formulated research objectives and illustrate your answer with examples. (8 marks)

**Question 11:**

(a) Clearly explaining the importance of formulating a research problem. ( 6marks)

(b) Discuss the key components that should be included when conceptualising a research design. ( 8 marks)

(c) Discuss the main objectives and principles of sampling when selecting a study sample. ( 6 marks)

**Question 12:**

Explain all the phases in the eight-step model for carrying out research. List the activities that are carried out under each phase (20 marks)