



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

CERTIFICATE IN INFORMATION TECHNOLOGY

RESEARCH METHODOLOGY

DATE: 2/9/2021

TIME: 8:30 – 11:30 AM

INSTRUCTIONS

Answer all questions in this Section A and any other four questions in Section B

SECTION A (COMPULSORY)

QUESTION ONE (32 MARKS)

- a) Define the term research. (2 marks)
- b) Outline three qualities of a researchable problem. (6 marks)
- c) Explain two types of hypothesis. (4 marks)
- d) Explain how a researcher/student can identify/select a research(able) problem/topic. (2 marks)
- e) Explain the purpose of research. (2 marks)
- f) Describe three data collection methods. (6 marks)
- g) Explain the following types of research.
 - i. Desktop research (2 marks)
 - ii. Case study (2 marks)
- h) Explain why you need research as a student. (2 marks)
- i) Explain the following types of research.
 - i. Survey (2 marks)
 - ii. experimental /laboratory research (2 marks)

SECTION B

QUESTION TWO (17 MARKS)

- a) State two application software that a researcher can use to analyse research data. (2 marks)
- b) Describe four data presentation techniques that a researcher can use to present his research findings. (8 marks)
- c) Define the following terms as used in research.
 - i. abstract (2 marks)
 - ii. research process (2 marks)
 - iii. data interpretation (2 marks)
 - iv. researchable problem (1 marks)

QUESTION THREE (17 MARKS)

- a) The research process can be summarised into three broad phases, i.e. planning research, conducting research and reporting research. Explain what is involved in planning research phase. (8 marks)
- b) Explain the contents of the following parts/sections/components of a research proposal/report.
 - i. references (4 marks)
 - ii. appendixes/annexes (5 marks)

QUESTION FOUR (17 MARKS)

- a) Identify four differences between a questionnaire and an interview schedule. (4 marks)
- b) Identify three data presentation tools. (3 marks)
- c) State two principles of research ethics. (2 marks)
- d) State two probability sampling techniques and two non-probability sampling techniques. (4 marks)
- e) Explain the following terms as applied in a research study.
 - i. Subject (2 marks)
 - ii. self-administered questionnaire (2 marks)

QUESTION FIVE (17 MARKS)

- a) Identify three reasons of sampling before data collection commence in a research study. (2 marks)
- b) Describe four sources of secondary data in a desktop research. (4 marks)
- c) Outline three primary sources of data and three secondary sources of data. (6 marks)
- d) Explain the importance of ethics in research. (4 marks)