



MACHAKOS UNIVERSITY

University Examinations for 2024/2025 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR DEGREE IN
BACHELOR OF SCIENCE IN CIVIL ENGINEERING

ECU 400: RESEARCH METHODOLOGY

DATE: 21ST JANUARY, 2025

TIME: 2.00 PM – 4.00 PM

INSTRUCTIONS:

Answer question ONE (Compulsory) and any other TWO questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- (a) Differentiate between the following terms as used in research methodology
- i) Research and Research methods (2 marks)
 - ii) Rationalism and Empiricism (2 marks)
 - iii) Sampling Sample and Sampling (2 marks)
 - iv) Statistic and statistics (2 marks)
- (b) Discuss Four things one must do to get started with data analysis (6 marks)
- (c) Outline the significance of justification section of academic research proposal. (8 marks)
- (d) Citation and referencing are very important in academic research. Do in text citation and reference for the attached scientific article on page 2 (8 marks)

QUESTION 2 (20 MARKS)

- (a) Explain Four characteristics that you use to identify a good research work (10 marks)
- (b) Discuss Four traits that secondary data must possess before you use it in your research work (10 marks)

QUESTION 3 (20 MARKS)

- (a) Differentiate between applied and basic in research (4 marks)
- (b) Illustrate Four contribution of research in technological development (16 marks)

QUESTION 4 (20 MARKS)

- (a) Define a research problem (4 marks)
- (b) Discuss four issues you will acquire when you carry out literature review in your research (16 marks)

QUESTION 5 (20 MARKS)

- (a) Describe quantitative approach in research (4 marks)
- (b) In research proposal there are several sections, one is methods and materials section. Briefly outline four reasons why this section is important in to your academic proposal (16 marks)