



MACHAKOS UNIVERSITY

University Examination 2019/2020

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (ELECTRICAL AND ELECTRONICS ENGINEERING)

BACHELOR OF SCIENCE (MECHANICAL ENGINEERING)

BACHELOR OF SCIENCE (CIVIL ENGINEERING)

ECU 400: RESEARCH METHODOLOGY

DATE: 10/12/2019

TIME: 2.00-4.00 PM

INSTRUCTIONS

Answer Question One and Any Other Two Questions

Use well labelled and neat diagrams where applicable.

QUESTION ONE (30 MARKS)

- a) Differentiate between research techniques and research methods (2 marks)
- b) Outline and discuss at least four challenges faced by researchers in Kenya (8 marks)
- c) Briefly discuss five types of research designs (10 marks)
- d) With help of their sub classes where applicable. Discuss the two main basic approaches to research. (10 marks)

QUESTION TWO (20 MARKS)

You have been tasked to research a particular engineering problem by your professor. With the help of a sketch/flow chart discuss how you intend to carry out your research process

QUESTION THREE (20 MARKS)

- a) Literature review is one of the key focus areas when conducting research. What are some of the analytical features of a literature review and its key purposes? (10 marks)

- b) Discuss at least five types of literature reviews (10 marks)

QUESTION FOUR (20 MARKS)

The most important chapter in any engineering research write up is the chapter on Methodology, it enhances the credibility or lack thereof of the research output. Explain the Importance of a good methodology section in obtaining and analyzing your results. Also discuss what a good methodology section entails.

QUESTION FIVE (20 MARKS)

- a) Explain three key issues to avoid when discussing the results of your final year project. (6 marks)
- b) The goal of a research proposal is twofold: to present and justify the need to study a research problem and to present the practical ways in which the proposed study should be conducted. Discuss the most important sections that must be included in a good research proposal. (14 marks)