



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology
Department of Mechanical & Automotive Engineering

UNIVERSITY EXAMINATION FOR:

BSc. Mechanical Engineering

EMG 2415 : Research Methods

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: 15 Apr 2016

Instructions to Candidates

You should have the following for this examination

- *Answer booklet*
- *Non-Programmable scientific calculator*

This paper consists of **FIVE** questions. Attempt question **ONE** and any other **TWO** questions.

Maximum marks for each part of a question are as shown.

Do not write on the question paper.

Question ONE (Compulsory)

- Enumerate briefly the mechanism of report writing and underline the precaution to be taken at the time of report writing. **(10 marks)**
- Give the definition of a research problem and briefly describe the criteria for prioritizing problems for research. **(6 marks)**
- Explain the following types of research:
 - Descriptive
 - Correlational
 - Explanatory
 - Exploratory **(8 marks)**
- Differentiate between a general and specific objectives. Give an example for each. **(6 marks)**

Question TWO

- Define literature review as used in research and explain the **THREE** main sources of literature review. **(8 marks)**
- In the event of carrying out research studies a researcher reviews related literature of materials in relation to problem of the research, briefly explain the challenges that may be encountered during this review. **(4 marks)**
- State and explain briefly the steps involved in formulating literature review. **(8 marks)**

Question THREE

- a. Briefly describe the steps involved in research process with suitable illustrations. **(16 marks)**
- b. State any FOUR major problems and constraints faced by researchers. **(4 marks)**

Question FOUR

- a. Define the following terms:
 - i. Primary data
 - ii. Secondary data **(4 marks)**
- a. State and explain briefly THREE factors to consider during data collection. **(6 marks)**
- b. Explain the essential steps that a researcher should use in data collection. **(10 marks)**

Question FIVE

- a. Outline the steps involved in qualitative data analysis **(8 marks)**
- b. State and explain briefly any FOUR data-presentation techniques. **(12 marks)**