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

<u>**Instructions to Candidates**</u>
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)

a. Enumerate briefly the mechanism of report writing and underline the precaution to be taken at the time of report writing. **(10 marks)**

b. Give the definition of a research problem and briefly describe the criteria for prioritizing problems for research. **(6 marks)**

c. Explain the following types of research:
    i. Descriptive
    ii. Correlational
    iii. Explanatory
    iv. Exploratory **(8 marks)**

d. Differentiate between a general and specific objectives. Give an example for each.
(6 marks)

Question TWO

a. Define literature review as used in research and explain the THREE main sources of literature review. **(8 marks)**

b. 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)**

c. 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)**