TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

ECE 2409 : RESEARCH METHODOLOGY

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: 15 Dec 2016

Instructions to Candidates
You should have the following for this examination
    -*Answer Booklet, examination pass and student ID*
    -*Drawing instruments.*
This paper consists of five questions.
Attempt question ONE (Compulsory) and any other TWO questions.
Do not write on the question paper.

QUESTION ONE (COMPULSORY)

(i)   Differentiate between the following relationships as used in cross tabulation and for each give an example relevant to the field of civil engineering: (6 marks)

        (a) A symmetrical relationship
        (b) A reciprocal relationship
        (c) Asymmetrical relationship

(ii)   Discuss the characteristics will you look for when collecting data using secondary sources? (9 Marks)

(iii) List down and define the errors that could arise as a result of using scales as a method of recording data obtained from observations. (5 Marks)

(iv)   Differentiate between probability and non-probability sampling designs. (2 Marks)

(v)   Using examples relevant to the field of civil engineering, discuss the different types of hypothesis. (8 Marks)

QUESTION TWO

Differentiate between the following: (20 Marks)

        (a) Descriptive and inferential statistics
        (b) Correlation and causal analysis
        (c) Multiple regression and multiple discriminant analysis
        (d) Measures of central tendency and measures of dispersion
        (e) Bivariate and multivariate population

QUESTION THREE

(i)   With the aid of diagrams discuss the different types of informal experimental research designs. (12 Marks)

(ii)   In which situations are the following research designs used? (6 Marks)

        (a) simple random sampling
        (b) stratified sampling
        (c) area sampling
        (d) convenience sampling
        (e) judgement sampling
        (f) quota sampling
        (g) multi-stage sampling

QUESTION FOUR

(i)   What is the difference between a conceptual framework and a theoretical framework? (4 Marks)

(ii) How does literature review help you to contextualize your findings in relation to the existing body of knowledge? (2 Marks)

(iii) Discuss the tests of sound measurement. (12 Marks)

QUESTION FIVE

(i) What is the difference between primary data and secondary data? Give examples in each case. (4 Marks)

(j) What criteria would you use when deciding between the use of an interview and a questionnaire? (6 Marks)

(k) Discuss the precautions will you put in mind when interpreting your final year project research findings? (10 Marks)