

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN
COMPUTER SCIENCE AND BACHELOR OF SCIENCE IN APPLIED COMPUTER
SCIENCE**

COSC 380: RESEARCH METHODS IN COMPUTER SCIENCE

ACSC 381: RESEARCH METHODS IN APPLIED COMPUTER SCIENCE

STREAMS: BSC (COMP. SCI.) & BSC (APPLIED COMP. SCI.) Y3S1 TIME: 2 HOURS

DAY/DATE: FRIDAY 14/12/2018

2.30 P.M – 4.30 P.M

INSTRUCTIONS:

****Attempt Question 1(SECTION A) and any other TWO from SECTION B**

SECTION A-COMPULSORY

Question ONE [30 Marks]

(a)With relevant examples, explain what the activity of computer science research entails

[4 Marks]

(b)While giving examples, describe the following types of measurement scales/variables.

(i)Ordinal

[4 Marks]

(ii)Nominal

[4 Marks]

(c)What is the role of the following components of a project proposal

(i)Problem statement

[2 Marks]

(ii)Objectives

[2 Marks]

- (iii)Literature review [2 Marks]
- (iv)Methodology [2 Marks]
- (v)Budget [2 Marks]
- (d)Describe empiricism and authority as methods of inquiry [4 Marks]
- (e)Describe **TWO** instruments that can be used in research [4 Marks]

SECTION B-Attempt any TWO questions from this section

Question TWO [20 Marks]

Research is a procedure by which we attempt to find systematically and with the support demonstrable fact, the answer to a question or resolution of a problem.

- (a)Briefly describe **FIVE** distinct characteristics of research [10 Marks]
- (b)Discuss 5 steps of scientific method [10 Marks]

Question THREE [20 Marks]

- (a)Simulation is a common aspect of research in the computer science discipline.While describing what **simulation** is, discuss its role in computer science research [4 Marks]
- (b)Using a diagram, illustrate the method of Engineering as applied in research [10 Marks]
- (c)Describe any **THREE** items that may be outputs of design and development research [6 Marks]

Question FOUR [20 Marks]

Research conducted in computer science may be classified as basic or applied research. Differentiate basic research from applied research in relation to the following:

- (i) Meaning [4 Marks]
- (ii) Nature [4 Marks]
- (iii) Utility [4 Marks]
- (iv) Concerns [4 Marks]
- (v)Goal [4 Marks]

Question FIVE [20 Marks]

(a) Research may be categorized as quantitative or qualitative. Differentiate quantitative research from Qualitative research **[4 Marks]**

(b) Identify the key characteristics of the following approaches to quantitative research.

(i) Descriptive **[3 Marks]**

(ii) Correlational **[3 Marks]**

(iii) Quasi-experimental **[3 Marks]**

(iv) Experimental **[3 Marks]**

(c) What is the role of a model in computer science research **[4 Marks]**
