

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DIPLOMA IN COMPUTER SCIENCE

COSC 0280: INTRODUCTION TO RESEARCH METHODS IN COMPUTER SCIENCE

STREAMS: DIP COMP SCI.

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 13/12/2017

11.30 A.M – 1.30 P.M

INSTRUCTIONS

****Attempt question 1 and any other TWO from SECTION B**

****Marks are awarded for clear and concise answers**

***ONLY the first THREE Questions attempted will be marked (Question one inclusive)**

SECTION A-Compulsory

(a) Discuss the following terminologies in relation to research [10 Marks]

- (i) Qualitative data
- (ii) Quantitative data
- (iii) Independent variable
- (iv) Hypothesis
- (v) Evaluation research

(b) In terms of classification by measurement techniques, identify **FOUR** types of variables [4 marks]

(c) While giving an example, explain how experimental research differ from correlational research. [4 Marks]

(d) Describe the following research approaches in computer science [4 Marks]

(i) Modeling

(ii) Simulation

(e) Give **TWO** artifacts that you can design and/or develop in computer science [4 Marks]

(f) Give **FOUR** characteristics of a good research problem [4 Marks]

SECTION B- Answer any TWO questions

Question TWO[20 Marks]

(a) Illustrate using a diagram, the Engineering method of research that can be applied in development of artifacts in computer science [10 Marks]

(b) Differentiate between a primary source of literature and a secondary source [4 Marks]

(c) Describe **THREE** examples of sources of information for literature review [6 Marks]

Question THREE [20 Marks]

The basis for obtaining useful research results is adequate, objective and reliable

Data. Provide the advantages and disadvantages of the following data collection approaches.

(a) Questionnaires [10 Marks]

(b) Interviews [10 Marks]

Question FOUR[20 Marks]

(a) Differentiate between the following:

(i) Independent variable and dependent variable [4 Marks]

(ii) Basic research and applied research [4 Marks]

(iii) Population and sample [4 Marks]

(b) You are carrying out an experimental study to find out if R.A.M capacity (A), Processor Speed (B), Processor Type(C) can influence performance of a Computer Software (D) you have developed. Identify all the Independent and dependent variables in this study. [8 Marks]

Question FIVE [20 Marks]

Describe the role of the following parts of research proposal.

(i) Objectives of the study [5 Marks]

(ii) Methodology [5 Marks]

(iii) Budget [5 Marks]

(iv) Time schedule [5 Marks]
