

**CHUKA**



**UNIVERSITY**

## **UNIVERSITY EXAMINATIONS**

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

**COMP 312: RESEARCH METHODS IN COMPUTER SCIENCE**

**STREAMS:**

**TIME: 2 HOURS**

**DAY/DATE:FRIDAY 8/12/2017**

**8.30 A.M – 10.30 A.M**

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**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**

**QUESTION ONE (30MARKS)**

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

(i)Sampling

(ii) Population

(iii)Independent variable

(iv)Hypothesis

(v)Objectives

(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 **FOUR** items that can be considered as artifacts in design and development strategy. [4 Marks]

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

**SECTION B-Answer any TWO questions**

**Question TWO (20marks)**

(a) Using a flow-chart show the procedure followed in Engineering method of research. [10 Marks]

(b) The basis for obtaining useful research results is adequate, objective and reliable Data. Briefly describe the strengths and limitations of questionnaires [6 Marks]

(c) Distinguish the role of experimental group and control group in experimental research. [4 Marks]

**Question Three [20 Marks]**

Discuss four instruments you can use to collect research data and circumstances under which they apply. [20 Marks]

**Question Four [20 Marks]**

(a) Discuss 5 steps of scientific method. [10 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 System (D)

(i) Draw a conceptual framework to show this relationship [6 Marks]

(ii) Identify the Independent and dependent variables in this study [4 Marks]

**Question Five [20 Marks]**

While giving relevant examples and at least two problems in each discuss the following methods of inquiry. [20 Marks]

- (i) The method of authority
  - (ii) The method of intuition
  - (iii) The method of tenacity
  - (iv) Rational method
  - (v) Method of empiricism
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