CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD DEGREE OF MASTER OF COMPUTER SCIENCE

COSC 861: RESEARCH METHODS IN COMPUTER SCIENCE

STREAMS: **TIME: 2 HOURS**

DAY/DATE: THURSDAY 5/12/2019   **8.30 A.M – 10.30 A.M**

INSTRUCTIONS:

SECTION A: COMPULSORY

QUESTION 1: [30 MARKS] COMPULSORY

a) Discuss the importance of literature review, clearly indicating its objective in a research proposal.   (5 marks)

b) Explain FIVE factors a researcher should consider when evaluating the quality of information sources.   (5 marks)

c) "Current trends in information technology growth has exposed the security of our data at stake". In line with the above statement, write the following parts of research proposal. A research topic of your choice, a problem statement, justification, THREE objectives, and the scope of your study; which should be in line with your selected topic.   (10 marks)

d) Describe FOUR conditions that justifies that a research problem do exist   (4 marks)

e) Define the term "Hypothesis" and Enumerate FIVE characteristics of Hypothesis
                                                                                      (6 marks)

SECTION B: ANSWER ANY TWO QUESTIONS FROM THIS SECTION

QUESTION 2: [15 MARKS]

a) Explain the term research design, hence outline FOUR considerations for a research design to be appropriate for a particular research problem.   (6 marks)

b) Explain the parts of a research proposal document   (4marks)

c) Explain FIVE considerations that a researcher has to make during sampling design.
(5marks)

QUESTION 3: [15 MARKS]

a) Briefly explain FIVE characteristics of scientific research. (5 marks)

b) Discuss FIVE probabilistic sampling techniques that a researcher may use to select a sample from a population giving an advantage and disadvantage for each. (5 marks)

c) Discuss the ethical issues that a researcher has to consider while carrying out research relating to:
        i) The respondents (2 marks)
        ii) The sponsor (3 marks)

QUESTION 4: [15 MARKS]

a) Briefly explain FOUR sources of measurement differences in data collection. (4 marks)

b) Explain the nature of a hypothesis in a research process; hence explain THREE importance of hypothesis. (6 marks)

c) Discuss the reasons why it is important to write a research proposal before engaging in any field research exercise. (5 marks)

QUESTION 5: [15 MARKS]

a) Explain FIVE factors that should be taken into consideration by a researcher in selecting an appropriate method for data collection. (5 marks)

b) Explain SIX benefits of research in Computer science. (3 marks)

c) Differentiate between the following terms as used in research
      i.   Reliability and validity (2 marks)
     ii.   Antecedent variables and Intervening variables (2 marks)
    iii.   Cross-sectional research and Longitudinal research (3 marks)