CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE

COSC 101: INTRODUCTION TO COMPUTER SYSTEMS

STREAMS: COMP SCI. Y1S1   **TIME: 2 HOURS**

DAY/DATE: MONDAY 11/12/2017   **8.30 A.M – 10.30 A.M**

INSTRUCTIONS:

- **Answer QUESTION ONE and any other TWO questions.**
- **This is a CLOSED BOOK exam. No reference materials are allowed in the exam room.**
- **No mobile phone allowed in the exam room** *(make sure to switch it off and leave it with the invigilator if you carried one).*
- **Write your answers legibly and use your time wisely**

SECTION A (COMPULSORY)

Question One (Compulsory) (30 marks)

a) Distinguish between the 1st , 2nd and 3rd generations of computers in terms of processing technology and memory.   [6 marks]
b) Discuss the instruction-execution cycle.   [4 marks]
c) Explain the different processor models and their functioning.   [6 marks]
d) What are encoding schemes? Discuss any two common encoding schemes.   [6 marks]
e) Discuss three emergent technologies shaping the IT world today.   [6 Marks]
f) What is a program?   [2 marks]

SECTION B (Answer any TWO questions from this section)

Question Two (20 marks)

a) Describe the history of the internet.   [6 Marks]
b) Discuss the different wired transmission mediums in networks.   [6 Marks]

c) Discuss the common application software in an office and their merits.   [8 Marks]

Question Three (20 marks)

a) Outline the steps to constructing a good database.   [4 marks]
b) Discuss 3 ethical issues posed by IT.   [6 marks]
c) Discuss the different memory addressing schemes.   [10 Marks]

Question Four (20 marks)

a) Distinguish between flat and hierarchical network models.   [4 marks]
b) What is a DBMS? Outline any three functions of a DBMS.   [5 marks]
c) Using a diagram, describe the general architecture of a UNIX system.   [7 Marks]
d) Explain the different acquisition schemes for software.   [4 marks]

Question Five (20 marks)

a) Describe the architecture of a processor using a diagram.   [6 marks]
b) Distinguish between *tables, queries* and *relationships* as used in databases. [6 marks]
c) Describe how computer hardware represents data.   [4 marks]
d) Discuss the applications of computers in science and in government.   [4 marks]