CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

RESIT/SPECIAL EXAMINATION

EXAMINATION FOR THE AWARD OF DIPLOMA IN COMPUTER SCIENCE

COSC 0101: INTRODUCTION TO COMPUTER SYSTEMS

STREAMS: DIP. COMP SCIENCE Y1S1   **TIME: 2 HOURS**

DAY/DATE: WEDNESDAY 11/08/2021   **11.30 A.M – 1.30 P.M.**

INSTRUCTIONS:

- Answer question **ONE** and **TWO** other questions
- Do not write anything on the question paper
- This is a **closed book exam**, no reference materials are allowed in the examination room
- There will be **NO** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely.

SECTION A

QUESTION ONE COMPULSORY (30 MARKS)
(a) Explain the following terms as applied in computer systems:
  (i) Word Length   [2 marks]
(ii) Software   [2 marks]
(iii) Computer network   [2 marks]

(b) Explain the difference between RISC and CISC   [3 marks]

(c) Using appropriate examples differentiate between Off-shelf software and Tailor-made software.   [3 marks]

(d) Explain the difference between the following terms.

    i.   System software and application software   [2 marks]
    ii.   Random Access memory and Read Only memory   [2 marks]

(e) The main role of the CPU is to execute instructions. Explain four steps involved during the execution of an instruction [8 marks]

(f) Why is Konrad Zuse considered to be "Inventor of computers" [2 marks]

(g) What are the two key operations on memory [4 marks]

SECTION B (Answer Any Two Questions Only!!)

Question two (20 marks)

a. List and explain FOUR applications of Embedded systems in society. [8 marks]

b. List ONE methods of job scheduling done by operating systems AND explain THREE techniques of EACH scheduling type. [4 marks]

c. List EIGHT components of a modern computer architecture. [8 marks]

Question three (20 marks)

a. Perform the following conversions

    i. 011101111_2 to decimal [2 marks]

    ii. 1111010101001110_2 to hexadecimal [2 marks]

    iii. $2AB_{16}$ to binary [2 marks]

    iv. $2CD_{16}$ to decimal [2 marks]

    v.   Add binary number 101110 to 111011. [2 marks]

b. Explain three main types of system buses [6 marks]

c. Differentiate between SRAM and DRAM and with reasons state which one is suitable for making cache memory [4 marks]

Question four (20 marks)

a) Describe the following terms:

    i. Bit [2 marks]

    ii. Byte [2 marks]

    iii. Word [2 marks]

    iv. Nibble [2 marks]

b) Explain the difference between the following terms.

    i.   System software and application software [2 marks]

ii. Random Access memory and Read Only memory [2 marks]

c) Discuss the use of three major components found in CPU [6 marks]

d) Highlight two major limitations for networking [2 marks]

Question five (20 marks)

a) Describe the diverse areas of application of computers and computer systems. [10 Marks]

b) Njeri, a student at KIMS college was asked by his lecturer to "identify and classify five types of computers", Explain how he will solve the problem. [10 marks]