

THARAKA



UNIVERSITY

COLLEGE

(A Constituent College of Chuka University)

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF
DIPLOMA IN COMPUTER SCIENCE**

COSC 0101: INTRODUCTION TO COMPUTER SYSTEMS

STREAMS: DIP (COSC)

TIME: 2 HOURS

DAY/DATE: FRIDAY 17/04/2020

2.30 PM – 4.30 PM

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) Computer network (2marks)

(ii) Software (2marks)

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

(c) 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)

(d) Using an illustrative diagram, describe the components of a programmable machine based on the von Neumann model (5 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) Explain the difference between RISC and CISC (3 marks)
- (g) Represent 23 in the binary number system (3 marks)

SECTION B

Question two (20 marks)

- a. Each generation of computer is characterized by a major technological development that fundamentally changed the way computers operate, resulting in increasingly smaller, cheaper, more powerful. Discuss various evolution of the computers generation. [10 marks]
- b. You are the I.C.T manager of an organization and you are requested to give the best specification in order to purchase computers. Discuss various five factors you would consider during purchase. [10 marks]

Question three (20 marks)

- a) Describe the diverse areas of application of computers and computer systems. (8 marks)
- b) List and explain FOUR applications of Embedded systems in society. (8 mks)
- c) State four layers of the computer architecture? [4 mks]

Question four (20 marks)

- a) Describe the following terms: (8mks)
 - i. Bit
 - ii. Byte
 - iii. Word
 - iv. Nibble
- b) Explain the difference between the following terms.
 - iii. System software and application software [2 marks]
 - iv. 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. 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]
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