

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

CHUKA/THARAKA

**FIRST YEAR EXAMINATION FOR THE AWARD OF CERTIFICATE IN
COMPUTER SCIENCE**

COSC 00101: COMPUTER SYSTEMS AND ORGANIZATION

STREAMS: CERT COMP SCI.

TIME: 2 HOURS

DAY/DATE: MONDAY 4/12/2017

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 (30 marks)

- a. Explain what you understand by the following terms.
 - i. Data and information [2 marks]
 - ii. Bit and byte [2 marks]
- b. Computers play a major role in Government. Describe four ways that government applies computers to deliver services to its citizens. [4 marks]
- c. Using an illustrative diagram, describe the basic components of a computer system [5 marks]
- d. Today's world is an information rich-world and it has become a necessity for people to use computers to perform well in their duties, Outline **five** characteristics of computers that make them widely used. [5 marks]
- e. Explain what you understand by the term volatile and non-volatile with regard to computer memory. [2 marks]
- f. The main role of the CPU is to execute instructions. Explain four steps involved during the execution of an instruction. [8 marks]
- g. Highlight two major limitations for networking. [2 marks]

SECTION B

Question two (20 marks)

- a. A port is a hardware connection interface on a personal computer that enables devices to be connected to the computer. Distinguish the following types of connections.
 - i. Serial connection [2 marks]
 - ii. Parallel connection [2 marks]
 - iii. USB connection [2 marks]
- b. In an overview, operating system is a program that acts as an interface between the user and the computer hardware. Explain other **five** functions of operating system. [10 marks]
- c. Data can either be in form of text or instructions, a picture, sound and video. Give corresponding input devices to these forms of data. [4 marks]

Question three (20 marks)

- a. Each generation of computer is characterized by a major technological development that fundamentally changed the way computers operate, resulting to increasingly smaller, cheaper and more powerful computers. Discuss various evolvement of the five computer generations. [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 four (20 marks)

- a. Perform the following conversions
 - i. 110.011_2 to decimal [2 marks]
 - ii. 1111010101001110_2 to hexadecimal [2 marks]
 - iii. 0.6_{10} to binary [2 marks]
 - iv. $2CD_{16}$ to decimal [2 marks]
- b. Giving examples discuss classification of computers based on their size and speed, purpose and data handling technology. [12 marks]

Question five (20 marks)

- a. The system bus is the main communication path between the CPU and memory.
Explain three types of these buses. [6 marks]
 - b. Differentiate between SRAM and DRAM and with a reason state which one is suitable for making cache memory. [4 marks]
 - c. Computer system is comprised of physical components and the data stored in it.
Describe six ways used to care and maintain computer systems. [6 marks]
 - d. Differentiate between internet and intranet. [4 marks]
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