



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR**

**SECOND YEAR SECOND SEMESTER EXAMINATIONS
FOR THE DIPLOMA IN INFORMATION TECHNOLOGY**

COURSE CODE: DIT 075

COURSE TITLE: COMPUTER ORGANIZATION AND ARCHITECTURE

DATE: 17/04/2023

TIME: 8:00-9:30AM

INSTRUCTIONS TO CANDIDATES

Answer **Questions ONE** and **ANY OTHER TWO**.

TIME: 2 Hours

MMUST observes **ZERO** tolerance to examination cheating

This Paper Consists of 2 Pages. Please Turn Over.

QUESTION ONE (24 MARKS)

- a) Define the following terms; (4 Marks)
 - i) Computer system architecture
 - ii) Computer organization
- b) Use a diagram to show the main components of a computer based on the Von Neumann architecture. (4 Marks)
- c) State the functions of each component in question 1b. (4 Marks)
- d) The Von Neumann machine make use of several registers. Briefly describe the use of the following registers; (6 Marks)
 - i) Program Counter
 - ii) Instruction Register
 - iii) Memory Address Register
- e) List and describe the function of the THREE parts that make up a microprocessor. (6 Marks)

QUESTION TWO (18 MARKS)

- a) Compare and contrast the Cache memory and the internal main memory. (4 Marks)
- b) Discuss the following terms; (4 Marks)
 - i) Bus structure
 - ii) The Bus protocol
- c) At the very basic level, a computer system is a device consisting of three components. (6 Marks)
- d) Mention and discuss these three components. (6 Marks)
- e) A Mr. Jones, a 1st year student in Meru University intends to buy a computer that he could use while in the University as a tool while in the university as well in the hostels. Kindly advise him on the kind and type of a computer system he could buy. Give him the full specification of a good computer. (4 Marks)

QUESTION THREE (18 MARKS)

- a) Discuss at least five operating system services. (6 Marks)
- b) Discuss the five state process model of the operating system. Draw the diagram to illustrate your answer. (4 Marks)
- c) Discuss the instruction cycle with an interrupt. (4 Marks)
- d) Compare and contrast SRAM and DRAM (4 Marks)

QUESTION FOUR (18 MARKS)

- a) Programming languages have evolved over time
 - i) Give the difference between machine language and assembly language (2 Marks)
 - ii) Give two advantages of fourth generation programming languages (2 Marks)
- b) Troubleshooting is an important task in computer maintenance. Give two symptoms of a faulty;
 - i) microprocessor (2 Marks)
 - ii) hard-disk drive (2 Marks)
 - iii) display (2 Marks)
- c) Give THREE components of a motherboard and their functions. (3 Marks)
- d) Outline the TWO main types of software used in computers today. Give examples (3 Marks)
- e) Give two advantages of optical discs (2 Marks)

QUESTION FIVE (18 MARKS)

- a) Describe the difference between main memory and external memory. Give examples (4 Marks)
- b) List four tips for preventative maintenance of computer system (4 Marks)
- c) State TWO input devices and TWO output devices and their functions (4 Marks)

d) Explain the terms access time and hit rate

(4 Marks)

e) Give the following acronyms in full

(2 Marks)

i) EEPROM

ii) CD-R

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