



NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, 91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
COMPUTER SCIENCE DEPARTMENT
2023_2 EXAMINATIONS

CIT 314: COMPUTER ARCHITECTURE AND ORGANIZATION **Credit: 2½ units**

INSTRUCTION: Answer Four (4). Question one is Compulsory

- 1a. Examine the merits and demerits of CD-ROMs. (10 marks)
- 1b. In a segmented-page organization, each entry in the page table may have its own protection field to describe the access rights of each page. Identify some of the access rights of interest that are used for protecting the programs residing in memory. (4 marks)
- 1c. Juxtapose the Synchronous and Asynchronous Transmission. (5 marks)
- 1d. The cause-effect relationship implied in the three-universe model leads to the definition of two important parameters; fault latency and error latency. Highlight the characteristics of faults. (6 marks)

- 2a. Discuss memory mapping and its important in computer architecture (4 marks)
- 2b. Examine drawbacks in the virtual memory and important properties for maintaining consistency in the memory hierarchy. (7 marks)
- 2c. Describe sources of faults you understand in fault tolerant. (4 marks)

- 3a. Virtual memories enable processes in the systems to share CPU and main memory with other processes. Highlight the importance of virtual memories. (3 marks)
- 3b. In computer architecture, it is the responsibility of the control Unit to tell the computer's memory, arithmetic/logic unit and input and output devices how to respond to the instructions that have been sent to the processor. Examine the functions of a control unit. (6 marks)
- 3c. Describe the following in fault tolerant. (6 marks)
 - I) Nature of a faults
 - II) Fault Duration
 - III) Permanent fault
 - IV) Transient fault

- v) Intermittent fault
- vi) Fault Extent

4a. Define fault tolerance analysis. (1 mark)

4b. What is the goal of fault tolerant? (2 marks)

4c. Write short note on the following Compact Disk-Read Only Memory (12 marks)

- i) Read-only memory (ROM) disks (2 marks)
- ii) Write-once read-many (WORM) disks (2 marks)
- iii) Re-writeable, write-many read-many (WMRM) disks (2 marks)
- iv) WORM (write once, read many) (2 marks)
- v) Erasable Optical Disk: (2 marks)
- vi) Touchscreen Optical Device: (2 marks)

5a. Distinguish between machine and assembly languages (1 Mark)

5b. Highlight the basic steps for READ and WRITE memory operations (4 marks)

5c. Discuss the goals of fault tolerant (10 marks)

6a. Discuss Fault tolerance systems. (5 marks)

6b. Examine types of control unit in central processing unit. (4 marks)

6c. With the aid of examples, describe three address instruction in computer architecture (6 marks)