



NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, 91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
COMPUTER SCIENCE DEPARTMENT
2024 1 EXAMINATION

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

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

- 1a. Highlight two disadvantages of Microprogrammed Control Unit (5 mark)
- 1b. Discuss by highlighting, the storage location of a magnetic disk (10 marks)
- 1c. Examine limitations of Asynchronous Controllers. (10 marks)

- 2a. Examine core components of a critical system to improve fault tolerance. (4 marks)
- 2b. Discuss cache memory in computer architecture. (5 marks)
- 2c. Define registers and discuss two forms of registers with examples. (6 marks)

- 3a. Examine when replacement algorithm is useful. (2 marks)
- 3b. The one-address instruction `ADD R1` = the three-address instruction `ADD R1,Racc,Racc` or to the two-address instruction `ADD R1,Racc`. How? (3 marks)**
- 3c. Discuss the characteristics of fault tolerance systems. (10 marks)

- 4a. Assemblers are the programs that generate machine code instructions from a source code program written in assembly language. Highlight the functions of assemblers (3 Marks)
- 4b. What are the issues associated to Hardware and software tolerant. (5 marks)
- 4c. With the aid of well-labelled diagram, discuss the process of **Handshaking in Asynchronous buses** (7 Marks)

- 5a. What is a redundancy in fault tolerant? (2 marks)
- 5b. Highlight the components of the 16-bit registers in a simple accumulator-based processor (4 Marks)
- 5c. Discuss methods through which data can be transferred to and from the peripherals. (9 marks)