



NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, 91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi,
Abuja
FACULTY OF SCIENCES
COMPUTER SCIENCE DEPARTMENT
2023_1 POP EXAMINATION

CIT314 – Architecture and Organization II

Credit: 3 units

TIME ALLOWED: 2½ Hours

INSTRUCTION: Answer Question 1 and any other THREE (3) Questions.

Question One

- a. Discuss the types of faults may occur in the cloud environment leading to failures and performance degradation. (4 marks)
- b. Outline the challenges of implementing fault tolerance in cloud computing. (7 marks)
- c. With example describe the concept of cloud computing. (5 marks)
- d. List the major issues that may arise in the process of fault modelling and evaluation. (5 marks)
- e. Describe the concept of virtual memory as a tool for caching. (4 marks)

Question Two

- a. Describe any four important instruction set design issues in computer architecture. (6 marks)
- b. Clearly highlight, the advantages and disadvantages of pipelining. (5 marks)
- c. Define the following terms:
 - a. Translation lookaside buffer (TLB) (2 marks)
 - b. The Second Chance Page Replacement Algorithm. (2 marks)

Question Three

- a. Explain the architectural concept of a computer system that enables it operate such that all programs are executing at the same time. (5 marks)
- b. Give a short description of floppy disks recording methods. (6 marks)
- c. Why is virtual memory important to a programmer? (2 marks)
- d. Define Fault Tree Analysis. (2 marks)

Question Four

- a. Highlight the major goals of devising a fault model. (4 marks)
- b. Discuss the term Fault Models (6 marks)
- c. What is virtual memory and outline its' important capabilities that actuates memory abstraction? (5 marks)

Question Five

- a. With the aid of a diagram, discuss the hierarchy design of memory in a computer system. (6 marks)
- b. List the main characteristics of magnetic tape memory. (5 marks)
- c. Why is memory hierarchy relevant in the organization of a computer system? (4 marks)

Question Six

- a. Describe the possible ways of Data transfer to and from the peripherals. (6 marks)
- b. Discuss the features inherent in Compact Disk Read-Only Memory. (7 marks)
- c. What are the drawbacks of using virtual memory? (2 marks)