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

CIT309: Computer Architecture **Credit Units: 3**

Instruction: *Answer Question (1) (22 marks) and any other four questions each carrying 12 marks* **Time:** *2½ hours*

1(a) Distinguish between computer organization and computer function. ***(5 marks)***
b) Explain briefly the functional components of a computer. ***(6 marks)***
(c) Explain the concept of the von Neumann computer. ***(5 marks)***
State the sequence of operations of the control unit in one clock pulse. ***(6 marks)***

2a) Briefly discuss the important issues in the design of instruction sets. ***(7½ marks)***
(b) Using a well-labelled diagram,give the general model of the control unit showing all of its inputs and outputs. ***(4½ marks)***

3(a) Describe a typical machine instruction *fetch-execute* cycle. ***(10½ marks)***
(b) What do understand by the word "Process"? ***(1½ marks)***

4(a) Briefly discuss the inputs and outputs of the general model of the control unit. ***(10½ marks)***
(b) What do understand by "Process switch"? ***(1½ marks)***

5a) State and diagrammatically represent the typical microinstruction formats. ***(10 marks)***
b) What do understand by "Thread"? ***(2 marks)***

6a) Briefly describe the taxonomy of parallel processing systems. ***(10 marks)***
(b) What is process scheduling? ***(2 marks)***

7a) List the key characteristics of a symmetric multiprocessor (SMP) system. ***(4 marks)***
(b) List and briefly explain four (4) principal approaches to multi-threading. ***(8 marks)***