

NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, 91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
COMPUTER SCIENCE DEPARTMENT
2023 2 EXAMINATIONS—

CIT309 – Computer Architecture

Credit: 3 units

TIME ALLOWED: 2½ Hours

INSTRUCTION: Answer Question 1 and any other FOUR (4) Questions

- 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)*
d) State the sequence of operations of the control unit in one clock pulse. *(6 Marks)*
- 2a) With the aid of an illustrative diagram, explain the five-state process model. *(10 marks)*
b) State the basic functions that a computer can perform. *(2 marks)*
- 3a) Write short notes on each of the following
i. ROM
ii. RAM
iii. Computer Architecture *(6 marks)*
- 3b) Evaluate the following using two's compliment
i. 0000 0101 – 0000 1000
ii. 0000 0111 – 0000 0011 *(6 marks)*
- 4a) Evaluate the following using two's compliment, expressing your answer in binary i. 17_{10}
- 10_{10} ii. $9_{10} + 11_{10}$ *(8 marks)*
4b) Outline the 4 categories of micro-operations known to you *(4 marks)*
- 5a.) Explain the difference between hardwired control and micro programmed control.
(6 Marks)
5b.) Enumerate the characteristics of RISC Architectures. *(6 Marks)*
- 6.a) Differentiate between the following terms:*(6 marks)*
i.) Control bus ii.) Address bus iii.) Data bus iv.) Karnaugh map v.) Boolean algebra
6b.) List and explain any three performance parameters in computer memory. *(6 marks)*