



NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, 91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
COMPUTER SCIENCE DEPARTMENT
2022_1 EXAMINATIONS.

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. Briefly describe each of the following: **22 Marks**

- i) SMP architecture. **(2 marks)**
- ii) Uniprocessor architecture **(2 marks)**
- iii) Processor performance measure. **(2 marks)**
- iv) Memory **(2marks)**
- v) Pipe-lining . **(2 marks)**
- vi) Micro architecture **(2 marks)**
- vii) Cache memory **(2 marks)**
- viii) Von Neumann architecture **(2 marks)**
- ix) Flynn’s taxonomy **(2 marks)**
- x) Time-shared bus **(2 marks)**
- xi) Logic gate **(2 marks)**

b. Define the term Computer Architecture. **3 Marks**

QUESTION TWO

- a. Explain the difference between Multicore and Multiprocessor **(4 marks)**
- b. List and briefly explain four major types of parallel processor system discussed in this course **(8 marks)**
- c. Describe the term Function **(3 marks)**

QUESTION THREE

- a. List and explain any three (3) popular advantages of Symmetric Multiprocessor over Uniprocessor architecture. **(6 marks)**
- b. What are the principal advantages and disadvantage(s) of using micro-programming to implement a control unit? **(6 marks)**
- c. State the first three (3) single instruction cycle **(3 marks)**

QUESTION FOUR

- a. Explain any four important instruction set design issues in computer architecture. (6 marks)
- b. Briefly explain the key components of a Mainframe Symmetric system (6 marks)
- c. Explain Instruction Address Calculation (ac) (3 marks)

QUESTION FIVE

- a. Briefly explain the following terminologies: (6 marks)
 - i.) Processor instruction set (1 mark)
 - ii.) Opcodes (1 mark)
 - iii.) Arithmetic and Logic Unit (ALU) (1 mark)
 - iv.) Two's complement notation (2 marks)
 - v.) Memory buffer register (MBR) (1 mark)
- b. The operation of the processor is determined by the instructions it executes. Enumerate four main elements of a machine instruction. (6 marks)
- c. What is Instruction Length (3 marks)

QUESTION SIX

- a. State the function of the following terms: (6 marks)
 - i.) Control bus
 - ii.) ii.) Address bus
 - iii.) iii.) Data bus
 - iv.) iv.) Karnaugh map
 - v.) v.) Boolean algebra
- b. List and explain any three performance parameters in computer memory. (6 marks)
- c. State and explain the two basic function of control unit task (3 marks)