**NATIONAL OPEN UNIVERSITY OF NIGERIA**
**University Village, 91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja**
**FACULTY OF SCIENCES**
**COMPUTER SCIENCE DEPARTMENT**
**2021_1 EXAMINATIONS** 12346

**CIT309 –** Computer Architecture          **Credit:** 3 units
**TIME ALLOWED:** 2½ Hours
**INSTRUCTION:** Answer Question 1 and any other FOUR (4) Questions

**QUESTIONS**

1) Briefly describe each of the following:
   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*)

2a)  Briefly explain the difference between Multicore and Multiprocessor *(4 marks)*
2b)  List and briefly explain four major types of parallel processor system discussed in this
     course *(8 marks)*

3a)  Explain any four (4) important instruction set design issues in computer architecture.
     *(6 marks)*
3b.) Briefly explain any four (4) the key components of a Mainframe Symmetric system.
     *(6 marks)*

4a.) What are the principal advantages and disadvantage(s) of using micro-programing to
     implement a control unit? (*6 marks)*
4b.) List and explain any three (3) popular advantages of Symmetric Multiprocessor over
     Uniprocessor architecture. (*6 marks)*

5a) Differentiate between the following terms: *(6 marks)*

i.) Control bus ii.) Address bus iii.) Data bus iv.) Karnaugh map v.) Boolean algebra

5b.)  List and explain any three performance parameters in computer memory. *(6 marks)*


6a.) Briefly explain the following terminologies:
    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)*


6b.) The operation of the processor is determined by the instructions it executes. Enumerate four

    main elements of a machine instruction.     *(6 marks)*