

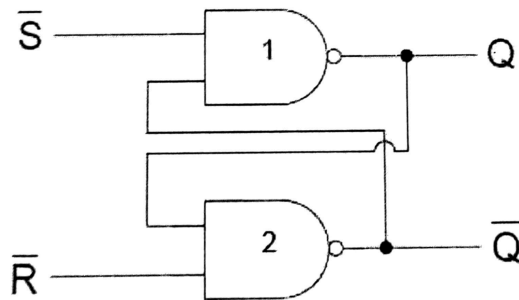
NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi – Abuja

FACULTY OF SCIENCE
DEPARTMENT OF COMPUTER SCIENCE
2023_1 POP EXAMINATION

Course Code: CIT344
Course Title: INTRODUCTION TO COMPUTER DESIGN
Credit: 3 units
Time allowed: 3 Hours
Instruction: Answer Questions ONE (1) and any other THREE (3) Questions

Questions

- 1a. Enumerate three (3) common forms of edge-triggered flip-flops employed in digital logic circuits. (6 marks)
- 1b. Describe the term ‘Microprocessor’ in computer design. (6marks)
- 1c. Find the sum of two 2-digit BCD numbers, 32 and 21. Your result should be in BCD and well explained. (7marks)
- 1d. Study the block diagram provided below, and



- i. State the operation depicted in the diagram. (1mark)
 - ii. Give a detailed explanation of how this process is implemented (5marks)
2. Explain briefly the following terms;
 - i. Memory Organization 5marks
 - ii. Read/Write Signals 5marks
 - iii. Address signals 5marks
- 3a. Illustrate with the aid of a diagram, the Central processing unit “fetch–execute” cycle. 8marks

- 3b. Give a brief explanation of how sequential circuits are implemented, using a well-labelled block diagram to illustrate this. **(7marks)**
- 4a. Distinguish between the two (2) main types of sequential circuits. **(5marks)**
- 4b. Write a simple program for declaring a CPU "fetch-execute" cycle. **(10 marks)**
- 5a. Explain in brief, the following terms;
- i. Decimal number system
 - ii. Binary number system **(3marks)**
- 5b. Give the binary equivalent of the following decimal numbers
- i. 5
 - ii. 7
 - iii. 13 **) 2 marks each**
 - iv. 9
 - v. 17
 - vi. 10
- 6a. Explain with the aid of a diagram how a full adder can be built from half adders. **(10marks)**
- 6b. Discuss extensively the two major categories of memory chips available. **(5marks)**