



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI-ABUJA**  
**FACULTY OF COMPUTING**  
**DEPARTMENT OF COMPUTER SCIENCE**  
**2025\_2 EXAMINATIONS**

**Course Code:** CIT 344  
**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. Illustrate the components and connections of a Read-Write memory in a block diagram format. **(7marks)**
- 1b. Describe the use cases for multiplexers. **(5marks)**
- 1c. In the context of sequential circuit, discuss in brief, the term “Flip-Flops” **(7marks)**
- 1d. Describe the term assembly language **(6marks)**

**TOTAL = 25MARKS**

- 2a. With the aid of diagram, briefly describe Half-Adder, and full adder. **(7marks)**
- 2b. Outline any eight (8) commands in assembly language that allows instructions to be processed when debugging a program. **(8marks)**

**TOTAL = 15MARKS**

- 3a. Fill in the table with 'Yes' or 'No'. **(6marks)**

Characteristics Memory Type	Non-Volatile	High Density	One-Transistor	In-System Write Ability
SRAM				
DRAM				
ROM				
EPROM				
EEPROM				
FLASH				

**TOTAL = 15 MARKS**

- 3b. Enumerate the classifications of FLASH Memory operations. **(3marks)**
- 3c. Write short notes on latch. **(6marks)**

**TOTAL = 15MARKS**

- 4a. Highlight the signals typically used to support the major operations of memory. **(6Marks)**
- 4b. Itemize the two major functions of a register and its different shift operations. **(8marks)**
- 4c. State the major ways by which finite state machines may be classified. **(1 mark)**

**TOTAL = 15MARKS**

- 5a. List the benefits of high-level programming. **(6marks)**
- 5b. Discuss Finite State Machine (FSM), and outline its characteristics **(9marks)**

**TOTAL = 15MARKS**

- 6a. State the similarities in the operations of a NAND-based S-R latch and a NOR-based S-R latch **(8 marks)**
- 6b. Complete the cells in the Truth-Table below for a NAND-based S-R Latch. **(4 marks)**
- 6c. State the two basic operations performed on memories **(3 Marks)**

**TOTAL = 15MARKS**