



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

2022_2 POP EXAMINATION

Course Code: CIT344
Course Title: INTRODUCTION TO COMPUTER DESIGN
Credit: 3 units
Time allowed: 3 Hours
Instruction: Answer Questions **ONE (1) 25marks** and any other **THREE (3) 15marks each** Questions

QUESTIONS

- 1a. Discuss Finite State Machine (FSM), and outline its characteristics **10marks**
- 1b. Complete the cells in the table below with either "YES" or "NO". **(6marks)**

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

- 1c. Draw the block diagram of a Read-Write memory. **(7marks)**
- 1d. State the major ways by which finite state machines may be classified. **(2marks)**
- 2a. State the application areas or uses of multiplexer. **(5marks)**
- 2b. Write short notes on latch. **(6marks)**
- 2c. Complete the cells in the Truth-Table below for a NAND-based S-R Latch. **(4marks)**

Input		Output
S	R	Q_{t+1}
0	0	
0	1	
1	0	
1	1	

- 3a. In the context of sequential circuit, discuss in brief, the term “Flip-Flops”
(7marks)
- 3b. i. State the two basic operations performed on memories (2Marks)
- 3b.ii. Highlight the signals typically used to support the basic operations performed on memories.. (6Marks)
- 4a. Briefly describe a Half-Adder, and full adder. Use diagram to illustrate your answer. (7marks)
- 4b. Itemize the two major functions of a register and its different shift operations.
(8marks)
- 5a. State the similarities in the operations of a NAND-based S-R latch and a NOR-based S-R latch (8marks)
- 5b. Enumerate any seven (7) commands in assembly language that allows instructions to be processed when debugging a program. (7marks)
- 6a. State the classifications of FLASH Memory operations. (3marks)
- 6b. Enumerate the benefits of using high level programming language. (6marks)
- 6c. Describe the term assembly language. (6marks)