6228

BOARD DIPLOMA EXAMINATION, (C-16)

AUGUST/SEPTEMBER—2021

DCME - THIRD SEMESTER EXAMINATION

DIGITAL ELECTRONICS AND COMPUTER ARCHITECTURE

Time : 3 hours]　　　　　　　　　　　　　　　　　　　[*Total Marks* : 80

PART—A　　　　　　　　　　3×10=30

Instructions :　(1) Answer **all** questions.

　　　　　　　　(2) Each question carries **three** marks.

　　　　　　　　(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. State the postulates of Boolean algebra.

2. Draw the circuit diagram of full adder.

3. Define positive logic and negative logic levels.

4. List the applications of counters.

5. List the application of multiplexer.

6. Draw the block diagram of digital computer.

7. Define Operand, Opcode and address.

8. Explain two address and three address instructions.

9. What are the advantages of cache memory?

10. Explain the need for an interface.

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Draw and explain 4-bit parallel adder.

12. Explain clocked R-S flip-flop with diagrams.

13. Draw and explain 4-bit synchronous counter.

14. *(a)* Draw and explain shift left register.

(b) Explain 4 to 10 line decoder.

15. Explain clearly the fetch cycle, execute cycle and instruction cycle.

16. Explain about different addressing modes with the help of examples.

17. *(a)* Explain fixed point multiplication with a flowchart.

(b) Write about memory hierarchy in a computer.

18. What is bus system? Explain about various bus systems.

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