



C16-CM-IT-302

6228

BOARD DIPLOMA EXAMINATION, (C-16)

JANUARY/FEBRUARY—2022

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 De-Morgan's laws.
2. Draw half adder.
3. Define positive logic and negative logic levels.
4. List types of data transfer between registers.
5. List the applications of multiplexer.
6. Define stored program concept.
7. Define opcode, operand and address.
8. Distinguish between fixed point and floating point representations.
9. List any six memory device characteristics.
10. List various peripheral devices connected to computer.

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[Contd...

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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 adder/2's complement subtractor circuit.
12. Draw and explain working of JK flip-flop with truth table and timing diagram.
13. Draw and explain 4-bit synchronous counter operation with timing diagram.
14. (a) Draw 4-bit ring counter and timing diagram.
(b) Draw the explain 4 to 10 line decoder.
15. Draw and explain block diagram of simple accumulator based CPU.
16. Explain different addressing modes.
17. (a) Draw flow chart for floating point multiplication.
(b) Explain principle and advantage of cache memory organization.
18. Explain DMA controlled data transfer.

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