C16–CM–302/C16–IT–**302**

6228

BOARD DIPLOMA EXAMINATION, (C–16)

MARCH/APRIL—2018

DCME—THIRD SEMESTER EXAMINATION

DIGITAL ELECTRONICS AND COMPUTER ARCHITECTURE

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

PART—A   10×3=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. Define AND gate. Give its truth table.

2. Define half adder. Give logic expressions for sum and carry.

3. List different logic families.

4. Distinguish between synchronous and asynchronous counters.

5. List the applications of multiplexer.

6. What are micro- and macro-operations?

7. What are fixed point and floating point representation of numbers?

8. List various addressing modes.

9. Differentiate between main memory and auxillary memory

10. List various peripheral devices that can be connected to computer.

PART—B

5×10=50

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

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

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

11. Explain the working of NAND and NOR gates with truth tables.

5+5

12. Explain JK flip-flop with a neat circuit diagram.

13. Draw and explain modulo-8 ripple counter.

14. *(a)* Explain the working of shift left register.   5

(b) Construct and explain 1 × 4 demultiplexer.   5

15. Write about simple accumulator based CPU in detail.

16. Explain fixed point addition and subtraction operations with flowcharts.

17. *(a)* Write about virtual memory organization in computer system.   5

(b) Write zero address instructions for $(A \quad B) (C \quad D)$.   5

18. Explain in detail about programmed I/O method of data transfer.

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