6234

BOARD DIPLOMA EXAMINATION

MARCH/APRIL - 2019

DIPLOMA IN DIPLOMA IN ELECTRONICS AND COMMUNICATION ENGINEERING

DIGITAL ELECTRONICS

THIRD SEMESTER EXAMINATION

Time: 3 Hours **Total Marks: 80**

PART - A (3m x 10 = 30m)

Note 1:Answer all questions and each question carries 3 marks

2:Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. What is the use of codes in digital electronics?
2. Subtract 41_{10} from 68_{10} using 1's complement method
3. Obtain the Excess-3 codes for the given Decimal numbers
   i) 16_{10} ii) 9_{10} and iii) 23_{10}
4. List IC numbers of two input logic gates
5. Draw the diagram of 4-bit magnitude comparator(7485IC)
6. Compare the performance of serial adder and parallel adder with respect to following

   parameters

   i) No. of Full adders and ii) Need of delay circuit
7. Draw the symbol of Edge triggered D-flip-flop and its truth table
8. Draw the logic diagram of JK flip-flop
9. Draw the logic diagram of NOR latch and its truth table
10. Differentiate Sequential Access Memory and Random Access Time memory

PART - B (10m x 5 = 50m)

Note 1:Answer any five questions and each carries 10 marks

2:The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. a) Simplify the logic expression ABC+ A BC +A BC +AB C
    b) Realize the above simplified expression using basic gates

12. a) State the different postulates in Boolean Algebra

    b) Compare Weighted and Un-weighted codes

13. a) Draw the circuit diagram of Totem Pole TTL NAND gate
    b) Compare the TTL, CMOS and ECL logic families with respect to the following parameters

    i. Noise Immunity ii. Power Dissipation iii. Fan-in

14. a) Draw the Half adder using NAND gates

    b) Illustrate the concept of combinational logic circuits

15. a) Draw the block diagram of serial adder
    b) Explain the function of serial adder using above block diagram

16. Explain the working of 4-bit Asynchronous Decade counter and its timing diagram

17. a) State the need for Preset and clear inputs
    b) Explain the function of level clocked JK flip-flop

18. a) Differentiate ROM and RAM
    b) Explain the function of Diode ROM using a diagram

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