6234
BOARD DIPLOMA EXAMINATION
JUNE - 2019 DIPLOMA IN DIPLOMA IN COMPUTER ENGINEERING
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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.

Find the 1's complement to the following numbers

2. i) 1010112 and ii) 1110112

Convert the following binary numbers into Grey code

3. i) 111102 and ii) 100102

Define the following terms related to logic families

4. i Propagation Delay ii) Noise margin iii) Fan-out

Compare the performance of serial adder and parallel adder with respect to following parameters

5. i) No. of Full adders and ii) Need of delay circuit

6. Draw the logic circuit of two bit digital comparator

7. State the need for Preset and clear inputs8.

List commonly used IC numbers of Flip-flops and counters

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9. Distinguish between Edge Triggering and Level Clocking10.

Draw the diagram of shift left register

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.

Obtain the Logic expression for the output Y and simplify for the given logic diagram

$Y = \bar{A}BC + A\bar{B}C + AB\bar{C} + ABC$

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12.

A	B	OUTPUT
0	0	1
0	1	1
1	0	1
1	1	0

13. a) Classify different Logic Families
b) Define the following terms related to logic families
i Propagation Delay ii) Noise margin iii) Fan-in

14. a) Draw the Half adder using NAND gates
b) Illustrate the concept of combinational logic circuits

15. a) Draw the working of BCD to Decimal Decoder
b) Explain the working of BCD to Decimal decoder using above logic diagram

16. a) Explain the race-around condition
b) Explain the function of clocked D flip-flop using above diagram and truth table

17. Explain the working of 4-bit Ring counter

18. a) Draw the 4-bit shift left register , truth table and its timing diagram
b) Explain the function 4-bit shift left register with help of above diagram

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