

**3237**  
**BOARD DIPLOMA EXAMINATION, (C-09)**  
**JUNE - 2019**  
**DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERING**  
**DIGITAL ELECTRONICS**  
**THIRD SEMESTER EXAMINATION**

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

**PART - A (10 x 3 = 30 Marks)**

*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. Multiply the following binary numbers  $1110_2$  and  $1101_2$
2. Convert the following decimal numbers into hexadecimal numbers  
 (a)  $523_{10}$       (b)  $104_{10}$       (c)  $650_{10}$
3. Define 'Fan-in , Fan-out & Power Dissipation of logic families
4. Draw a simple tri – state buffer
5. Draw a BCD to Decimal decoder circuit
6. List three IC no's for registers
7. Mention any three applications of Flip Flops
8. What is a Flip Flop?
9. List any three ROM ICs
10. Draw the circuit of A/D converter using counter method

**PART - B (5 x 10 = 50 Marks)**

*Note 1: Answer any five questions and each question 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) Draw the Sum of Products circuit for the equation

$$Y = \overline{A} \overline{B} \overline{C} + \overline{A} B \overline{C} + A \overline{B} \overline{C} + A B \overline{C}$$

5 marks

- b) Write Boolean expressions of sum of minterms from the following Truth table and simplify

5 marks

Inputs			Output
A	B	C	X
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0

12. a) State any five Boolean Postulates 5 marks  
b) Draw the logic circuits for the realization of AND, OR and NOT operations using NOR gates only. 5 marks
13. Draw and explain 2's compliment parallel adder / subtractor circuit with one example.
14. Draw a Full adder circuit and explain its operation with truth table
15. a) Draw and explain the operation of NAND latch 5 marks  
b) Write about level triggering and edge triggering 5 marks
16. Draw and explain the working of four bit bi directional shift register
17. a) Explain the terms Resolution, Accuracy and monotonicity of D/A converter. 5 marks  
b) Draw weighted resistors method of D/A converter. 5 marks
18. a) State Memory read operation write operation. 5 marks  
b) Define access time, memory capacity and word length 5 marks

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