



C09-EC-305

**3237**

**BOARD DIPLOMA EXAMINATION, (C-09)**

**OCT / NOV-2015**

**DECE - THIRD SEMESTER EXAMINATION**

**DIGITAL ELECTRONICS**

*Time : 3 hours ]*

*[ Total Marks : 80*

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**PART - A**

**3 X 10 = 30**

- Instructions :** (1) Answer **all** questions.  
(2) Each questions carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Convert the following decimal numbers into binary numbers :

(a)  $33_{10}$       (a)  $11.375_{10}$       (a)  $59_{10}$

2. Give any three uses of codes in digital electronic system.

3. How do you write POS expression from truth table?

4. Draw a 4-bit parallel adder circuit using full - adders.

5. Draw a simple tri-state buffer.

6. What are sequential logic circuits?

7. Write about race around conditions.

8. Explain the T-flip-flop along with its truth table.

9. Define the terms resolution and monotonicity of D/A counter.

10. Write any three differences between ROM and RAM.

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*[ Contd...*

**PART - B**

10 × 5 = 50

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

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

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

11. Draw CMOS NAND gate circuit and explain its operation.
12. a) State any five Boolean postulates.  
b) Draw the logic circuits for the realization of AND, OR and NOT operations using NOR gates only.
13. Draw and explain the operation of 1 to 4 demultiplexer.
14. a) Draw Half-adder circuit using exclusive OR gate and an AND gate and explain its function using truth table.  
b) Compare the performance of serial and parallel adders.
15. Draw and explain the working of 4 bit b; directional shift register,
16. Draw and explain the working of 4-bit asynchronous counter.
17. Describe the successive approximation method of A/D converter with a block diagram.
18. a) Distinguish between EEPROM and UVPROM.  
b) Explain the working of basic dynamic MOS RAM cell.

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