



C14-AEI-304

4217

**BOARD DIPLOMA EXAMINATION, (C-14)**  
**OCT/NOV—2015**  
**DAEI—THIRD SEMESTER EXAMINATION**  
**DIGITAL ELECTRONICS**

Time : 3 hours ]

[ Total Marks : 80

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**PART—A**

3×10=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. State De Morgan's theorem.
2. Explain EX-OR gate with truth table.
3. Compare serial and parallel adder in any three aspects.
4. What is an demultiplexer?
5. Draw SR flip-flop using NAND gate.
6. State the need for preset and clear inputs.
7. Write about modulo-N counter.
8. Classify memories.

- \* 9. State the use of shift register as memory.
10. Define the term accuracy and monotonicity of a D/A converter.

**PART—B**

10×5=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. (a) Convert  $296_{(10)}$   $(?)_{(8)}$ . 2  
 (b)  $11000_{(2)}$   $1110_{(2)}$   $(?)_{(2)}$ . 2  
 (c) Explain AND, OR, NOT operations with truth table. 6
12. (a) Divide  $1111_{(2)}$  by  $11_{(2)}$ . 4  
 (b) Simplify the given expression  

$$\overline{ABC} \quad \overline{A}BC \quad A\overline{BC}$$
 6
13. Explain the operation of 2's complement adder/subtractor with a neat diagram.
14. Explain the working of two-bit comparator with its truth table.
15. Explain the working of master-slave *J-K* flip-flop and mention its advantages with a neat sketch.
16. Draw and explain UP/DOWN asynchronous counter and draw its truth table.
- \* 17. (a) Draw and explain the working of parallel-in serial out. 6  
 (b) Explain the types of ROM's. 4
18. Explain the concept of A/D conversion using counter method.

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