

**1492****Code : 15EE34T**

Register Number 

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**III Semester Diploma Examination, Nov./Dec. 2016****DIGITAL ELECTRONICS****Time : 3 Hours ]****[ Max. Marks : 100**

**Note :** (i) Answer any **SIX** questions from PART-A. Each question carries **5** marks.  
(ii) Answer any **SEVEN** questions from PART-B. Each question carries **10** marks.

**PART – A**

1. Define : 5
  - (i) Noise Margin
  - (ii) Tri-State logic
  - (iii) Propagation delay
  - (iv) Fan-in
  - (v) Fan-out
2. (a) Define : 2
  - (i) Nibble
  - (ii) Word  
(b) List any three Number Systems.
3. Define with examples : 2+1+2
  - (i) Boolean function
  - (ii) Complement
  - (iii) Truth table
4. Explain Associative law and Distributive laws with an example. 5
5. Define encoder and list the applications of encoder. 5
6. Explain full-adder with logic diagram using gates and truth table. 5
7. Define level triggering and edge triggering with diagram. 5
8. Draw J K flip-flop using NAND gates and its truth table. 5
9. Explain CMOS interfacing with LED. 5

## PART – B

10. (a) List advantages and disadvantages of ECL. 5  
 (b) Explain Hexadecimal number system and its applications. 5
11. (a) (i) Subtract 10100 from 11001 using 2's compliment. 5  
 (ii) Add the following BCD numbers and Result must be in BCD :  
 1001 and 0110. 5  
 (b) (i) Convert 10100100010.011 to Hexadecimal number.  
 (ii) Convert 937.8 to BCD  
 (iii) Convert  $(2A6)_{16}$  into decimal number 2 + 1 + 2
12. (a) State Demorgon's theorems with equations. 5  
 (b) Simplify Boolean expression using K-map  

$$\psi = \bar{A}\bar{B}\bar{C} + \bar{A}\bar{B}C + A\bar{B}\bar{C} + A\bar{B}C + \bar{A}BC$$
 5
13. (a) Explain NOR and EX-OR gate with logic diagram and truth table. 4  
 (b) Explain the working of BCD to 7-segment decoder. 6
14. (a) Define demultiplexer and its applications. 4  
 (b) Explain the working of 4:1 multiplexer. 6
15. (a) Explain the working of priority encoder. 7  
 (b) Explain Gray code. 3
16. Explain the working of three-bit synchronies up counter with block diagram, truth table and timing diagram. 10
17. (a) Explain the working of J-K masth-slave inputs, block diagram and truth table. 6  
 (b) Explain the significance of Preset and Clear inputs. 4
18. (a) Define flash E2PROM and EEPROM. 4  
 (b) Explain the operation of successive approximation ADC with block diagram. 6
19. (a) Define memory and list the types of Memories. 4  
 (b) Explain the operation of four-bit P1P0 shift register. 6

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