

Roll No.

Total No. of Pages : 02

Total No. of Questions : 18

B.Tech.(CSE)/(IT) (2011 Onwards) (Sem.-3)

**DIGITAL CIRCUITS & LOGIC DESIGN**

Subject Code : BTCS-303

M.Code : 56593

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

**Answer briefly :**

1. Multiply 1011.01 with 110.1.
2. Discuss the principle of duality.
3. Distinguish between combinational and sequential logic circuits.
4. Define R-2R ladder DAC.
5. What is the purpose of state diagram?
6. Discuss race around condition in JK flip flop.
7. Draw logic diagram of 3-line to 8-line decoder.
8. Explain level triggering.
9. What is serial-out shift register?
10. Write short note on Programmable Logic Arrays.

## SECTION-B

11. Explain the working of Gray code? Write its importance and uses.
12. Solve the following Boolean functions by using K-Map.  
$$F = (w,x,y,z) = \Sigma (0,1,4,5,6,8,9,10,12,13,14)$$
13. With a neat block diagram explain the function of encoder. Explain parity checker.
14. Discuss the advantages and disadvantages of TTL Logic Family.
15. How does a Dynamic RAM cell works? Write its applications.

## SECTION-C

16. a) What are Mealy and Moore models of sequential circuits?  
b) Give the introduction of Quine-McCluskey method of minimization.
17. Explain the types of counter. Write the steps to design a Synchronous Counter using JK flip flops.
18. What are the types of analog to digital converter techniques? Explain any one in detail.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**