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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.**