Roll No. | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 18

B.Tech.(CSE)/(IT) (2012 to 2017) (Sem.–3)

DIGITAL CIRCUITS & LOGIC DESIGN

Subject Code : BTCS-303

M.Code : 56593

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS 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

Write Briefly :

1. Convert a D flip flop into T flip flop

2. Design a 4:1 MUX

3. Parity Checker

4. MOSFET RAM

5. Function of Multivibrator

6. RTL versus DCTL

7. Convert 11001_2 to decimal

8. What is resolution in A/D Converter?

9. Find the state diagram to design a sequence detector circuit, which detects three or more consecutive 1's in a string of bits coming through an input line.

10. EEPROM

SECTION-B

11. Design full subtractor using De-Multiplexer.

12. Using Boolean algebra show that :

    $AB + \overline{A}C + BC = AB + \overline{A}C$

13. Explain the structure of typical RAM cell.

14. Draw and explain logic diagram of a mod-8 ripple counter using three JK flipflops.

15. What is difference in 1's and 2's Complement? Which of two is better to represent negative numbers? Why?

SECTION-C

16. What are the different A/D and D/A conversion techniques? Explain in detail.

17. What do you understand by Boolean expressions and need of their minimization? Elaborate SOP and POS.

18. a. Draw a truth table for 4-input 'OR' Gate and 3-input 'NAND' Gate

    b. Define Interfacing and show the interfacing of two TTL gates. Also discuss their characteristics.

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.