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

Total No. of Questions : 07

B.Sc.(IT) (2013 & 2014) (Sem.–2)
DIGITAL ELECTRONICS FUNDAMENTALS
Subject Code : BS-102
Paper ID : [B0405]

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 SIX questions carrying TEN marks each and a student has to attempt any FOUR questions.**

SECTION-A

Q1. Answer briefly :

i. Covert the gray code 1101 to binary code.

ii. State De-Morgan's Law.

iii. Convert $(96)_{10}$ to its equivalent gray code and EX-3 code.

iv. Classify different types of weighted and non-weighted codes.

v. Convert decimal number 852.54 to octal and hexadecimal number.

vi. Give the difference between combinational and sequential circuit.

vii. Give the truth table of D-flip flop.

viii. Perform the subtraction of 100011-111010 using 1's and 2's complement method.

ix. What is static RAM?

x. What do you mean by positive and negative logic?

SECTION-B

Q2. (a) What are the ways in which negative number can be represented in the memory of a computer?

(b) Simplify Y = (A+B) (A+B') (A'+B') by using laws and theorems of Boolean algebra.

Q3. (a) Express the Boolean function F = XY + X'Z in the product of maxterm.

(b) Implement the following function using suitable multiplexer :

F   (A,B,C,D) = Σ (0,1,3,4,8,9,15)

Q4. Reduce the following function using K-map.

F(A,B,C,D) = π (0,3,4,7,8,10,12,14) + d (2,6) and implement the reduced function using NAND gates only.

Q5. (a) Explain the working operation of master-slave JK-flip flop.

(b) Explain the different parameters to characterize the families.

Q6. What is triggering in flip flop? Convert an SR flip flop to JK flip flop.

Q7. (a) Draw the truth table of full subtractor and implement using minimum number of logic gates.

(b) What is memory? Explain the types of ROM.

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