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

Total No. of Questions : 09

B.Tech.(EE) (Sem.–4)

DIGITAL ELECTRONICS

Subject Code : EC-204

M.Code : 57011

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

1. Answer briefly :

a. Give the decimal representation of binary numbers : (a)**1011010** (b)**1001.1100**

b. Convert the gray code **11001011** into binary code.

c. Why NAND and NOR gates are called as universal gates.

d. Draw truth table for half adder and half subtratctor.

e. Differentiate between signed and unsigned numbers.

f. Write the application of De Morgan's law in Boolean algebra.

g. Differentiate between RAM and ROM.

h. What do you mean by terms "fan in" and "fan out"?

i. What do you mean by accuracy and resolution of A/D converter?

j. What are the different types of shift registers?

SECTION-B

2. What is a multiplexer? Explain the design of 8:1 multiplexer.

3. Reduce the function f = Σm (2, 3, 6, 7, 8, 10, 11, 13, 14) using K-Map.

4. Explain the working of successive approximation A/D converter.

5. Differentiate the following :

   a. Min terms and Max terms.

   b. Sum of product and Product of sum.

6. Design a MOD-8 asynchronous counter.

SECTION-C

7. Design a MOD-5 counter using JK Flip-flops.

8. Design the 4:16 Encoder with the help of truth table.

9. Write a short note on the following :

   a. ECL and DTL logic families.

   b. Shift Registers.