

Roll No. ....

Total Pages : 3

**BT-3/D-18**

**33083**

**DIGITAL ELECTRONICS**

Paper : CSE-207(N)

Time : Three Hours]

[Maximum Marks : 75

**Note :** Attempt *five* questions in all, selecting at least *one* question from each unit. All questions carry equal marks.

1. (a) State De-Morgan's Theorem. 3
- (b) Discuss BCD adder design procedure. 4
- (c) Draw pin configuration of 555 timer IC. 4
- (d) Explain memory decoding. 4

### UNIT-I

2. Discuss Quine Mc-Clusky (QMC) method of Minimization. Simplify the following expression using QMC method also verify the results by K map method

$$F = \sum_{A,B,C,D} m(1, 4, 5, 6, 12, 13, 14) + \sum d(0, 8, 9, 11).$$

15

3. (a) Write the small note on the following :
  - (i) CMOS characteristics.
  - (ii) Principle of duality. 10
- (b) Realize the following logic equation using only NAND gates :

$$AB + CD = AB \cdot CD. \quad 5$$

## UNIT-II

4. (a) Differentiate between serial adder and parallel adder with the help of full adder block diagram. 10
- (b) Explain magnitude comparator. 5
5. Design a BCD-to-Gray code convertor using
- (a) 8 : 1 multiplexer.
- (b) Dual 4 : 1 multiplexers and some gates.
- (c) NAND gates only. 15

## UNIT-III

6. (a) Explain the operation of twisted ring counter and give its state diagram. 8
- (b) Explain master slave flip-flop with the help of diagram. 7
7. Write short notes on the following :
- (a) Shift register counter.
- (b) Modulo-n counter.
- (c) Sequence generator. 15

## UNIT-IV

8. (a) What is dynamic RAM? Explain its cell structure. 7
- (b) Explain the following in brief :
- (i) EPROM.
- (ii) EAPROM. 8

**9. Write short notes on the following :**

- (a) Memory expansion.
- (b) Implementation of PLA using ROM.
- (c) FPGA.

**15**

