

Roll No.

Total Pages : 03

BT-4/M-20

34104

DIGITAL ELECTRONICS

EE-202N

Time : Three Hours]

[Maximum Marks : 75

Note Attempt Five questions in all, selecting atleast question from each Unit.

Unit I

1. (a) What are BCD code and Excess-3 code ? What are the rules for BCD and Excess 3 code additions ? Explain with suitable examples. **8**
- (b) Explain the rules of 1's complement and 2's complements addition and subtraction with suitable examples. **7**
2. (a) Explain different types of Logic gates and their truth tables. **8**
- (b) Describe De Morgan's theorems and simplify the given Boolean expression : **7**

$$Y(A, B, C, D) = \overline{(\overline{A} + C)} \cdot (\overline{B + D})$$

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Unit II

3. Minimize the following expressions using K-Map and realize its using NOR gate only : **15**
 $f(A, B, C, D) = \sum m(0, 1, 3, 4, 5, 7, 10, 13, 14, 15)$
4. Explain half subtractor and full subtractor and design full subtractor using half subtractor. **15**

Unit III

5. (a) Explain D/A and A/D converter with Schematic diagrams. **8**
(b) Describe Successive Approximation Method in detail. **7**
6. (a) Explain how a J-K flip-flop is converted into D flip-flop and T flip-flop. **8**
(b) Draw a neat circuit diagram of clocked J-K flip-flop using NAND gates. Give its truth table and explain race around condition. **7**

Unit IV

7. (a) Explain the characteristics of ECL family in detail. **8**
(b) Explain the operation of CMOS NOR gate. **7**

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8. Write short notes on ~~any~~ ^{three} of the following **5×3**

- (a) ROM
- (b) PAL
- (c) FPGA
- (d) CPLDS.

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