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Total Pages : 2

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BT-3/D-24

DIGITAL ELECTRONICS

Paper : ES-207A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt all questions.

1. (a) Perform following operations using 1's compliment method :

(i) 48–23.

(ii) 23–(.67). 5

(b) What are universal gates? Explain how these gates can be used as basic AND, OR and NOT gates? 5

(c) Simplify (A+B)(A' +C) to minimum number of literals. 5

2. (a) Explain the working of CMOS NAND gate. 7

(b) Minimize the expression using tabular method. $F = \Sigma m (1, 2, 4, 5, 6, 8, 9, 10, 13) + d (3, 7, 15)$. Also realize the obtained expression using AOI logic. 8

UNIT–II

3. (a) State and explain the working of BCD adder-subtractor with its logic diagram. 10

(b) Design an octal to binary encoder. 5

4. (a) Design a 4 bit even parity generator and checker. 5

(b) What do you mean by multiplexer? Explain the working of n : 1 mux. Design a multiplexer tree for 32 : 1 mux using 8 : 1 mux. 10

UNIT–III

5. (a) Explain the working of master slave flip flop. How it solves the problem of race around condition? 8

(b) Convert SR flip flop in JK flip flop. 7

6. (a) What is counter? Design an asynchronous mod-10 counter. 8

(b) Draw and explain the logic diagram of universal shift register. 7

UNIT–IV

7. (a) Mention the characteristics of Digital to Analog converter. 8

(b) Describe working of dual slope ADC. 7

8. (a) Draw the diagram of basic RAM cell. Explain SRAM and DRAM memories. Also describe how read and write operations occur in RAM. 8

(b) Write a note on PLA. Also explain implementation of PLA using ROM. 7