

MAY 2012

**P/ID 17454/RCD/
PCAG**

Time : Three hours

Maximum : 75 marks

PART A — (5 × 5 = 25 marks)

Answer ALL questions.

All questions carry equal marks.

1. (a) Convert the following :

(i) $(225.225)_{10} = (?)_2$

(ii) $(623.77)_8 = (?)_{10}$

(iii) $(11010111.110)_2 = (?)_{16}$.

Or

(b) Perform the subtraction with the following decimal numbers using 10's complement.

(i) $72532 - 3250$

(ii) $3250 - 72532$.

2. (a) Draw the circuit of full adder and explain.

Or

(b) Explain the operation of a multiplexer by means of a function table.

3. (a) Draw the logic diagram of D flip-flop and explain its working principle.

Or

- (b) Explain about the Sequential circuit that uses a register.

4. (a) Write short notes on Status register.

Or

- (b) Write short notes on the design of Arithmetic circuit.

5. (a) Explain the various types of Input-Output instructions.

Or

- (b) Write short notes on Microprogram control.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

All questions carry equal marks.

6. Simplify the Boolean function using K-Map method

$$F = A'B'C' + B'CD' + A'BCD' + AB'C'$$

7. Discuss in detail about various logic gates with their truth tables.

8. Describe the operation of binary parallel adder with logic circuits.
 9. Explain about the Read Only Memory in detail.
 10. Explain the JK flip-flop with neat diagram.
 11. Write a detailed note on processor unit.
 12. Discuss on system configuration.
 13. Explain about memory-reference instructions with examples.
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