

MAY 2023

**P/ID 17602/PCA1B/
PCATB**

Time : Three hours

Maximum : 80 marks

PART A — (10 × 2 = 20 marks)

Answer any TEN questions each in 50 words.

1. Simplify the Boolean expression $A+AB+ABC$.
2. What are prime-implicants?
3. Mention the different types of binary codes.
4. What is code converter?
5. What is the function of the enable input in a Multiplexer?
6. List out the applications of comparator
7. What is an excitation table?
8. Give state — reduction procedure.
9. What is synchronous counter?
10. Define the term bus.

11. What do you mean by memory address register(MAR) and memory data register(MDR)?
12. What is branch Instruction?

PART B — (5 × 6 = 30 marks)

Answer any FIVE questions each in 250 words.

13. Explain the concepts of 1's and 2's complement.
14. State and prove DeMorgan's theorem.
15. What is the difference between Full Adder and Half Adder?
16. What is PLA? Draw the block diagram of PLA and explain it.
17. Write short notes on shift register.
18. Give a brief account on Microprogramming.
19. Discuss about the design of Accumulator.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions each in 500 words.

20. Simplify using K-map method:
 $F(W,XY,Z) = \Sigma(0,1,2,4,5,6,8,9,12,13,14).$
21. Design a 1 of 16 decoder with a neat diagram.

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22. What is flip flop? Explain JK flip flop with a neat diagram.
 23. Describe about Processor organization.
 24. Explain various basic instructions with examples.
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