

DECEMBER 2020

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

Time : Three hours

Maximum : 80 marks

PART A — (10 × 2 = 20 marks)

Answer any TEN questions

1. Convert gray code 101011 into it binary equivalent
2. Find 2's complement of $(10100011)_2$.
3. What is Karnaugh map?
4. What is the job of subtractor?
5. What do you mean by comparator?
6. Compare combinational and sequential circuit.
7. Define the term flip flop.
8. What is meant by register?
9. What is scratch pad memory?
10. What is status register?
11. Write the use of accumulator.
12. What do you mean by instruction set?

PART B — (5 × 6 = 30 marks)

Answer any FIVE questions

13. State and prove DeMorgan's theorem.
14. Simplify the following Boolean function using tabulation method.
 $F(w, x, y, z) = (1, 0, 2, 8, 10, 11, 14, 15).$
15. Describe full adder with its logic diagram and truth table.
16. Describe the construction and working of RS flip flop.
17. Explain the working of serial in serial out register.
18. Write short notes on the effects of output carry.
19. What is hardwired control? Explain briefly.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions

20. Reduce the following expression using mapping and implement the real minimal expression in universal logic:

$$F(a, b, c, d) = m(0, 2, 4, 6, 7, 8, 10, 12, 13, 15).$$

21. Explain ROM architecture with neat diagram.
 22. What are counters? Explain its types.
 23. Write a detailed note on processor organization.
 24. Discuss on instruction and data formats.
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