DECEMBER 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. Why complementing of a number is needed?

2. State DeMorgan's theorem.

3. What is tabulation method?

4. Define the term Combinational circuit.

5. What is Binary parallel adder?

6. List out the applications of comparators.

7. What is meant by race around condition?

8. What is synchronous counter?

9. Define the term ALU.

10. Write the purpose of status register.

11. What is Accumulator?

12. What are the advantages of micro programmed control unit?

PART B — ($5 \times 6 = 30$ marks)

Answer any FIVE questions each in 250 words.

13. Convert the decimal number $(300.55)_{10}$ to octal and hexadecimal number.

14. What are the basic gates? Illustrate them with their truth table.

15. Write the working principle of Full-adder with its circuit and truth table.

16. Explain ROM and its types.

17. Brief on the working principle of D flip flop.

18. Write short notes on scratch pad memory.

19. Explain the design of computer.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions each in 500 words.

20. Simplify the following Boolean function using k-map method:

F(W,X,Y,Z)= Σ (1 , 3, 4, 6, 9, 11, 12, 14).

21. Draw the block diagram of full adder, half adder and Explain.

22. What is counter? Explain about ripple counter.

23. Describe memory unit in detail.

24. Write detailed notes on instruction and data formats.
