DECEMBER 2022 **U/ID 46501/UCC1A**

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer any TEN questions

1. What is Gray Code?

2. Convert the following number $(1011000110)_{2} = (\ ?\ )_{16}$

3. Define Commutative Law.

4. What is mean by Truth Table.

5. Define Map.

6. What are the rule followed to obtain NAND Logic diagram from a Boolean function.

7. What is Demultiplexer?

8. What is Flip Flop?

9. What is Synchronous Counters?

10. What is a Memory register?

11. What is a Binary Parallel Adder?

12. What is ROM?

PART B — ($5 \times 5 = 25$ marks)

Answer any FIVE questions

13. Perform One's and Two's complement subtraction using following numbers :

11001. 11

1101. 01 (–)

14. Simplify using K-map

$F = (A, B, C, D) = \sum (1, 3, 8, 9, 10, 11)$

15. List out the difference between combinational and sequential circuit.

16. What is an Encoder? Explain briefly.

17. Explain the working of JK Flip Flop briefly.

18. Explain Ripple counter - Briefly.

19. Write a note on Shift Register.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions

20. Explain the representation of Integer number in computer with examples.

21. Construct the Full Adder using only NAND gate. Explain.

22. Explain the master slave flipflop with a neat circuit.

23. What is the use of Multiplexer? Explain its working in detail.

24. Explain the Design circuit of Decoders with neat diagram.

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