GROUP-B

Answer any **one** question on lottery basis out of **twenty two** questions. Each question carries 35 marks.

1. Design a Synchronous 3-bit counter.

2. Using OP-AMP design a half-adder.

3. Design a Binary to Gray code converter using basic gates.

4. Implement Full adder using NAND gates only.

5. Implement Full Subtracter using NOR gates only.

6. Design a 2×4 decoder using NAND gates.

7. Design and construct a 3-bit Synchronous up counter using J-K flipflop.

8. Design Full Subtracter using MUX.

9. Design D flip flop using basic gates.

10. Implement the following function using basic gates.

$$F = \Sigma m(3,4,5,7,9,13,15)$$

11. Assume that a 3-bit massage is to be transmitted with even parity. Design a circuit for even parity generator.

12. Design J-K flipflop using basic gates.

13. Design J-K master slave flip flop.

14. Design a 4-to-2 priority encoder using basic gates.

15. Design S-R flipflop using basic gates.

16. Design a BCD to Excess-3 code converter using basic gates.

17. Design a 3-bit asynchronous counter.

18. Design a 4-bit priority encoder circuit.

19. Design a full subtracter using full adder (7483).

20. Design a 1:4 DeMultiplexer using NAND gates only.

21. Implement Full Subtracter using basic gates only.

22. Design T flip flop using basic gates.

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