Group B

Attempt any SIX questions. [6x5=30]

11.Subtract: 675.6 – 456.4 using both 10's and 9's complement.**[5]**

12.What is universal logic gate? Realize NAND and NOR as an universal logic gates. **[1+2+2]**

13. Simplify (using K- map) the given Boolean function F in both SOP and POS using don't care conditions D: B'CD' + A'BC'D F=B'C'D' + BCD' + ABCD' **[2+3]**

14.Define encoder: Draw logic diagram and truth table of octal - to - binary encoder. **[1 + 4]**

15.What is D flip-flop? Explain clocked RS flip-flop with its logic diagram and truth table.**[1+4]**

16.Design MOD - 5 counter with state and timing diagram.**[2+1+2]**

17. Design a 4 - bit serial into parallel- out shift register with timing diagram. **[3+2]**

Group C

Attempt any TWO questions.[2x10=20]

18. Write difference between PLA and PAL. Design a PLA circuit with given functions.
F1 (A, B, C)=Σ (2, 3, 5)
F2 (A, B, C)=Σ (0, 4, 5, 7).
Design PLA program table also.**[3+7]**

19.Define D flip-flop. Design a Master-slave flip-flop by using JK flip-flop along with its circuit diagram and truth table. **[2+8]**

20.Write down the difference between asynchronous and synchronous counter. Design a 4-bit binary ripple counter along with its circuit, state and timing diagram. **[3+7]**