1. Discuss the universal property of NAND and NOR gate with appropriate example.
2. Define De morgan's theorem.
3. Define tri state logic.
4. Realize the basic gate using universal gates.
5. Find the complement of F= x+YZ then show that F.F'=0 and F.F'=1
6. Simplify the following Boolean function in pos form by means of 4 variable k map and don't care condition. Draw the logic diagram with i)OR-AND gates
   ii)Nor gate

   F(W,X,Y,Z)= S*m*(2,3,4,5,6,7,11,14,15)

7. A logic circuit implement the following Boolean function F= A'c+AC'D. It is found that the circuit input combination A=C+1 can never occur. Using k map with proper don't care condition, find a simplified expression and implement it using NAND gates only.
8. Reduce the given expression in minimum number of literals using Boolean algebra and derive the truth table and implement in NAND logic. A+B[AC+{(AC+(B+C')D}]
9. Design a combinational circuit that converts a decimal digit from 2 4 2 1 code to 8 4 -2 -1 code to binary.
10. Define literal and term. Find the canonical sop for the expression F= ac+ab+bc.
11. Design a circuit of a 3 bit 3 bit parity generator and the circuit of 4 bit parity checker for odd parity.
12. Design a combinational circuit that has four inputs and two outputs, one of the output is high when majority of inputs are high and second output is high only when all inputs are of same type.
13. Use k map to simplify the given Boolean function with don't care condition and realize it using only basic gates. F=s(1,4,8,12,13,15) d=(3,7,11,14)