DLD

Important Questions for MID I

1. Convert the following gray codes to binary codes
   (i)110101 (ii) 101011
2. Convert the following:
   a) $(1101011)_2$ to gray
   b) $(ABCD.EF)_{16} = (\ )8 = (\ )_{10}$
3. Subtract 65_{10} from 32_{10} using 2's complement. Represent the result in 8-bit binary.
4. State and prove Demorgan Laws?
5. Expand the expression using Demorgan's law: ((XY)' +X' XY)'.
6. List the differences between PLA & PAL.
7. Reduce the following Boolean expression to a minimum number of literals
   (i) F=A'C+A'B'C'+A'BC' (ii) F=AB'C+B+ABD'+AC'
8. Convert the following functions:
   F = AC+AB+BC into SOP and realize using NAND gates.
   F = A(A+B)(A+B+C) into POS and realize using NOR gates.
9. Using a K-map method, minimize the Boolean function F(A,B,C,D) = πM(1,3,4,5,9,11,14,15).d(2,6,7,8), and implement the simplified function using logic gates.
10. Using a K-Map method, minimize the following Boolean function and implement the simplified function using only NOR gates
    F(A,B,C,D) = Σm(1,3,4,5,9,11,14,15)+d(2,6,7,8).
11. Simplify the function using Quine McCluskey method and realize the function with basic gates. F=πM(0,2,4,6,7,9).d(10,11)
12. Simplify the function using Quine McCluskey tabular method
    F=Σm(0,2,4,6,7,9)+d(10,11) and realize the function with only NAND gates.
13. Explain Half adder. Design half adder using NAND gates and implement Full adder using Half adder.
14. Implement 4:1 multiplexer.
15. What is a decoder? Design and Implement 3 to 8 Decoder.