Assignment-1

Due 31/10/22

Q1

Convert the following

a). $10110{\cdot}1101_{(2)} = ?_{(10)} = ?_{(7)} = ?_{(4)}$

b). $758{\cdot}9_{(10)} = ?_{(6)} = ?_{(8)} = ?_{(H)}$

c). $543{\cdot}2_{(6)} = ?_{(8)} = ?_{(H)} = ?_{(2)}$

d). $9527{\cdot}81_{(9)} = ?_{(7)} = ?_{(5)} = ?_{(3)}$

Q.2

Add the following

a). $531{\cdot}72_{(8)} + 711{\cdot}57_{(8)}$

b). $231{\cdot}43_{(5)} + 731{\cdot}51_{(8)} = ?_{(7)}$

c). $591{\cdot}31_{(10)} + 543{\cdot}21_{(6)} = ?_{(8)}$

d) $11011{\cdot}110_{(2)} + 10111{\cdot}01_{(2)} = ?_{(3)}$

Q.3 Solve the following Boolean expression using Boolean algebra and construct using NAND only and NOR only.

a). $ABC + \bar{A} + A\bar{B}C$

b). $\bar{A}BC + A\bar{B}\bar{C} + A\bar{B}C + AB\bar{C} + ABC$

c). $\overline{(\overline{A+B})} \cdot A + AB$

d). $ABC + A(\bar{B} + \bar{C})$

Q.4 Solve the following k-map and realize the logic circuits using NAND only & NOR only.

a) $f(A,B,C) = \Sigma m(1,3,6,7)$

b) $f(A,B,C,D) = \Sigma m(0,1,2,5,7,8,9,10,13,15)$

c). $f(A,B,C,D) = \Sigma m(1,3,4,6,8,9,11,13,15) + \Sigma d(0,2,14)$

d). $f(A,B,C,D) = \Pi M(0,1,2,4,5,6,8,9,10,12,13)$

Q.5 Convert the following expressions in Standard SOP & POS.

a). $\bar{A}\bar{B} + ABC + ABD + \bar{A}B\bar{D}$ → convert to equivalent POS

b). $(A+\bar{B})(\bar{C}+\bar{D})(A+\bar{D})$ → convert to equivalent SOP