

Q1

a) $6F226)_{16} \rightarrow 455206)_{10}$

b) $01101111)_{\text{Gray}}$
 $10110100)_{2}$

c) $442 =$ 0100 0100 0010
 $659 =$ 0110 0101 1001

1010 1001 1011

$+0110$ 1 $+0110$

10000 1010 0001

$+1$ 0110

10001 0000 0001

\downarrow 1 0 1

1 1 01

$\rightarrow 1101)_{\text{BCD}} \text{ Ans.}$

d) $-106 \rightarrow 11101010)_{2}$
 $1's \rightarrow 10010101)_{2}$
 $2's \rightarrow 10010110)_{2}$

e)

| | |
|---------------------|-----------------------|
| $01100100 (+100)$ | $-99) 10011101$ |
| $11010110 (-42)$ | $-18) 11101110$ |
| $(1)00111010 (+58)$ | $-117) 10001011)_{2}$ |

Discard

QNO.12

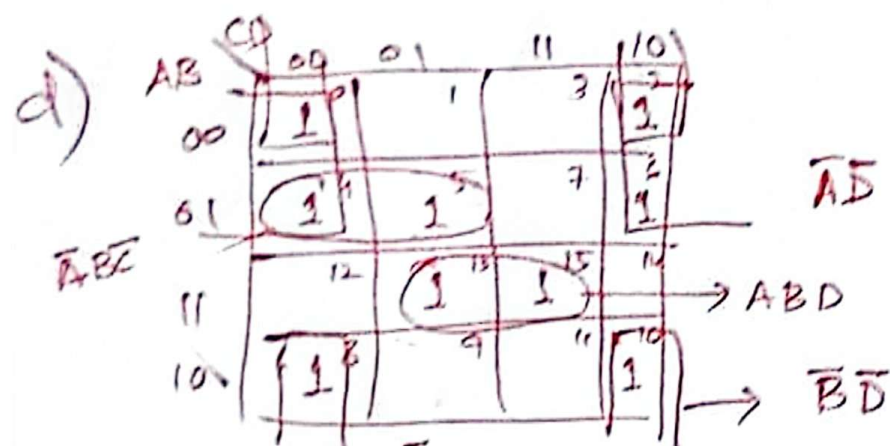


b)
$$[(A+B)C][ABC + C][AB\bar{C}]$$

$$[AC + CB][AB\bar{C} + C][AB\bar{C}]$$

$$[AAB\bar{C}\bar{C} + ACC + AB\bar{B}\bar{C}C + BCC][AB\bar{C}]$$

$$[AC + BC][AB\bar{C}] = 1.$$



SOP = $\bar{A}\bar{B} + \bar{B}\bar{D} + \bar{A}B\bar{C} + ABD$
 POS = $(B + \bar{D})(A + \bar{C} + \bar{D})(\bar{A} + \bar{B} + \bar{D})$

e)
$$\begin{matrix} \overbrace{0 \ 1 \ 0 \ 1}^5 & \overbrace{0 \ 1 \ 1 \ 1}^7 & \overbrace{0 \ 1 \ 1 \ 0}^6 & \overbrace{0 \ 1 \ 1 \ 1}^7 \\ (A + \bar{B} + C + \bar{D}) & (A + \bar{B} + \bar{C} + \bar{D}) & (A + \bar{B} + \bar{C} + D) & (A + \bar{B} + C + D) \\ \overbrace{1 \ 1 \ 1 \ 0}^{13} & \overbrace{1 \ 1 \ 1 \ 1}^{15} & & \\ \hline & & & \end{matrix}$$

Standard SOP = $0, 1, 2, 3, 4, 8, 9, 10, 11, 12, 14$

$$(\bar{A}\bar{B}\bar{C}\bar{D}) + (\bar{A}\bar{B}\bar{C}D) + (\bar{A}\bar{B}C\bar{D}) + (\bar{A}\bar{B}CD) + (\bar{A}B\bar{C}\bar{D}) +$$

$$(\bar{A}B\bar{C}D) + (\bar{A}B\bar{C}\bar{D}) + (\bar{A}B\bar{C}D) + (\bar{A}B\bar{C}\bar{D}) + (\bar{A}B\bar{C}\bar{D}) +$$

$$(\bar{A}B\bar{C}\bar{D})$$