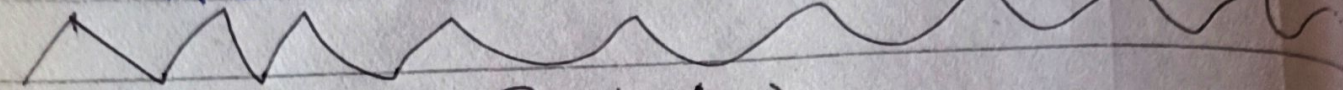


Question 4 Part B

$$x = ABC + A\bar{B}\bar{C} + \bar{A}\bar{B}C + A\bar{B}C + ABC$$

$$\Rightarrow \bar{A}BC + \bar{B}\bar{C}[A + \bar{A}] + AC[\bar{B} + B]$$

$$\Rightarrow \bar{A}BC + \bar{B}\bar{C} + AC$$



Q5 Part (a)

$$A = x + y + z$$

$$\bar{A} = \bar{x} + \bar{y} + z$$

$$x(1 \cdot 1) + y(1 \cdot 1) + z(1 \cdot 1)$$

$$x(y + \bar{y})(z + \bar{z}) + y(x + \bar{x})(z + \bar{z}) + z(y + \bar{y})(x + \bar{x})$$

$$x(yz + y\bar{z} + \bar{y}z + \bar{y}\bar{z}) + y(xz + x\bar{z} + \bar{x}z + \bar{x}\bar{z}) + z(yx + y\bar{x} + \bar{y}x + \bar{y}\bar{x})$$

$$\Rightarrow xyz + xy\bar{z} + x\bar{y}z + x\bar{y}\bar{z} + yxz + y\bar{x}z + y\bar{x}\bar{z} + \bar{y}xz + \bar{y}\bar{x}z + \bar{y}\bar{x}\bar{z}$$

Ans

(c) $1100_2 + 1011_2$ [use modulo-2]

$$\begin{array}{r} 1100 \\ + 1011 \\ \hline 0111 \end{array}$$

$(0111)_2$ is Ans.

(D) $01111111_2 - 00000111_2$ [use 2's complement]

Solve: Finding 2's complement of (00000111_2)

$$\begin{array}{r} 0000111 \\ 1111000 \\ + 1 \\ \hline 1111001 \end{array}$$

$$\begin{array}{r} 0111111 \\ 0111111 \\ 1111001 \\ + \\ \hline 0111000 \end{array}$$

Carry

$$0111111_2 - 00000111_2 = 0111111_2$$

Ans

Question: 6 part (a)

$$X = \overline{A}\overline{B}\overline{C} + A\overline{B}\overline{C} + \overline{A}B\overline{C} + A\overline{B}C + A\overline{B}C + \overline{A}BC$$

$$000 + 100 + 010 + 110 + 110 + 110$$

K-map

A \ BC	00	01	10	11
0	1	0	1	0
1	1	1	1	1

$$\Rightarrow \overline{B}\overline{C} + A\overline{B} + B\overline{C} + AB$$

Answer

Question: 06 part (b)

$$X = \overline{A}\overline{B}\overline{C} + A\overline{B}\overline{C} + \overline{A}B\overline{C} + A\overline{B}C + A\overline{B}C + \overline{A}BC$$

$$111 \quad 011 \quad 101 \quad 001 \quad 000 \quad 010$$

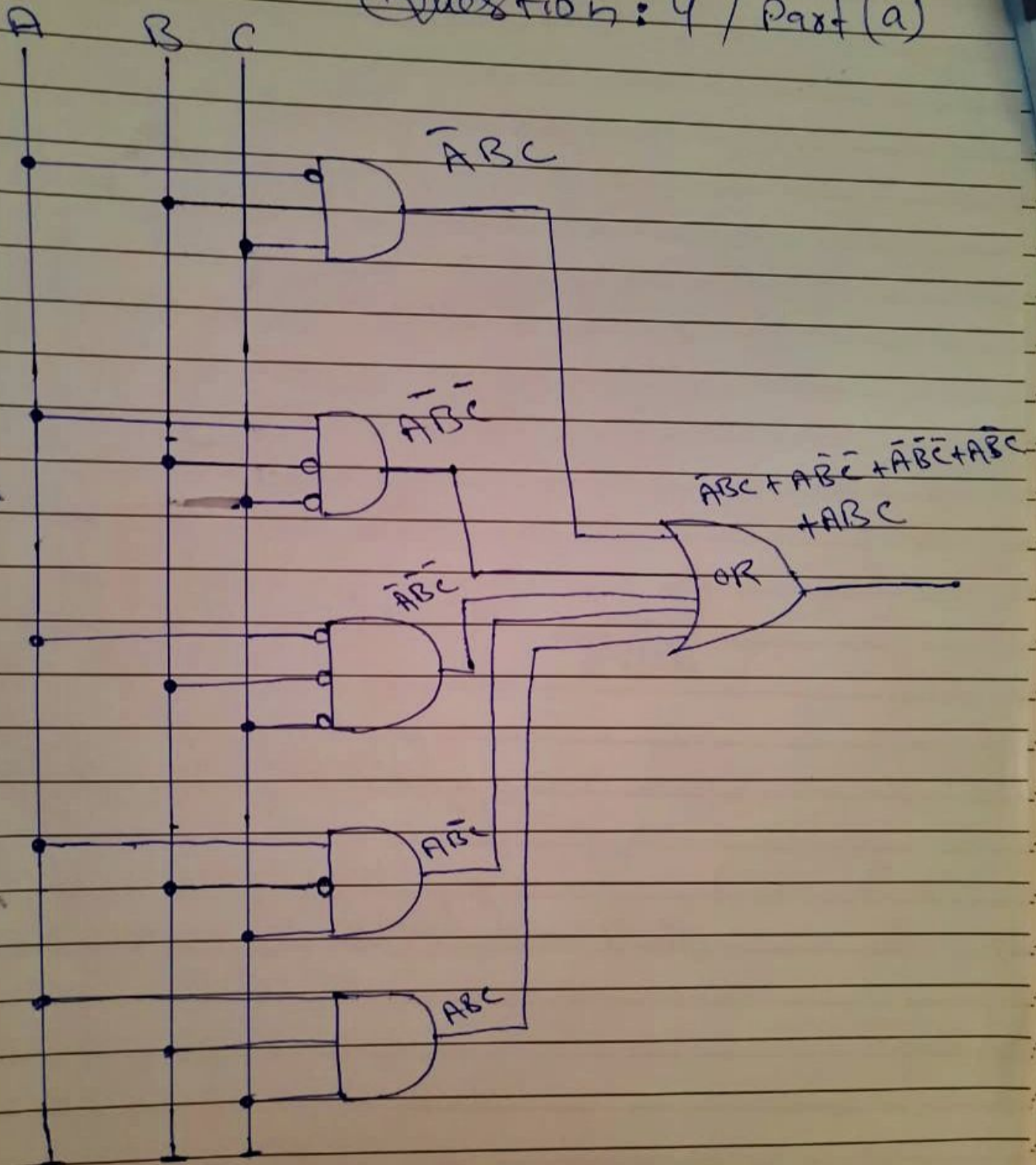
K-map

A \ BC	00	01	10	11
0	0	0	0	0
1		0		0

$$\Rightarrow X = (A+B)(B+\overline{C})(A+\overline{B})(\overline{B}+\overline{C})$$

Answer

Question: 4 / Part (a)



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Q1

(A) $45.25_{10} = (101101.01)_2$

(B) $0111111.1010_2 = (127.625)_{10}$

(C) $3AF_{16} = (11101001101111)_2$

(D) $10101010 = (170)_{10}$

(E) $-1_{10} = (-1)_2$

(F) $156_{10} = (0001010110)_{BCD}$

(G) $1001010_2 = (1101111)_{Gray}$

(H) $111000 = (110100)_{even\ Parity}$

Q2 (A) $9B_{16} + 8A_{16}$

$$\begin{array}{r} 9B \\ + 8A \\ \hline \end{array}$$

(125)

$(125)_{16}$ Ans

(B) $F7_{16} - D6_{16}$

$$\begin{array}{r} F7 \\ - D6 \\ \hline (21)_{16} \end{array}$$

$(21)_{16}$ Ans.

Question No 3

