Mid Exams

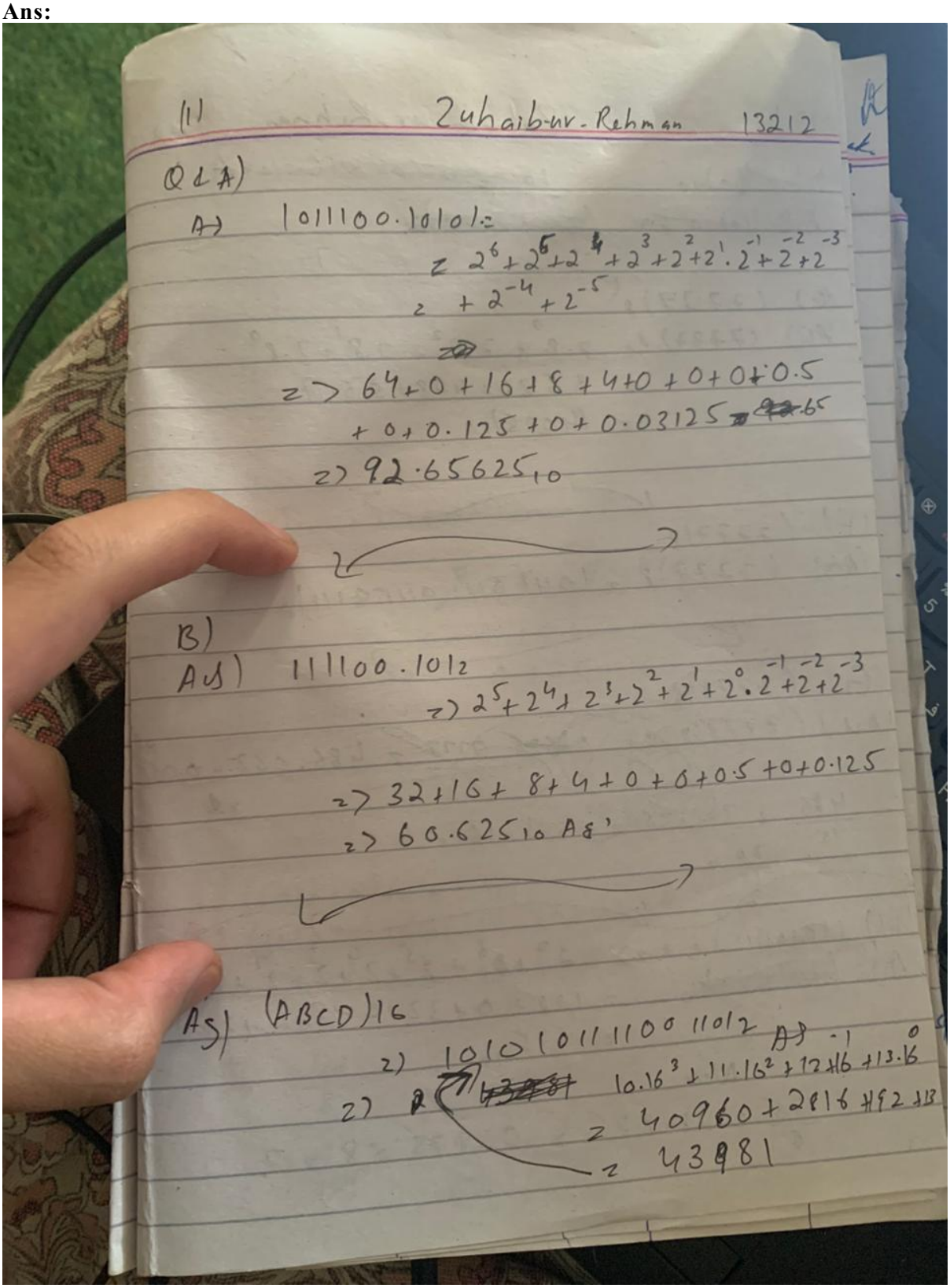
Zuhaib Ur Rehman (13212)

BS (SE)

Subject :DLD

Q1: Convert each of number to the required number system:

Ans:



(2) Zuhaib-ur-Rehman (13212)

~~D) (10)10~~ ~~10/16 = 0.625 × 16 = 10 = A~~

~~E) (10)10 =~~ ~~(1010)2~~

(E) $(7777)_8$

(Ans) $(7777)_8 = 7 \cdot 8^3 + 7 \cdot 8^2 + 7 \cdot 8^1 + 7 \cdot 8^0$

$= 3584 + 448 + 56 + 7$

$= (4095)_{10}$

(F) $(7777)_8$

(Ans) $(7777)_8 = (0111\ 0111\ 0111\ 0111)_2$

(G) $(7777)_8$

(Ans) $(7777)_8 = 486.062 = 0.062 \times 16 = 1$

$\frac{486}{16} = 30.375 = 0.375 \times 16 = 6$

$\frac{30}{16} = 1$

(H) $(10101111)_2 = 2^7 + 2^6 + 2^5 + 2^4 + 2^3 + 2^2 + 2^1 + 2^0$

A) ~~(10101010)10~~ $= 128 + 0 + 32 + 16 + 8 + 4 + 2 + 1$

$= 175_{10}$

Now

$\frac{175}{8} = 21.875 = 0.875 \times 8 = 7$

(3) Zuhaib-ur-Rehman (13212)

$\frac{21}{8} = 2.625 = 0.625 \times 8 = 5$

$\frac{2}{8} = 0.25 \times 8 = 2$

$\Rightarrow$ 752 (Ans).

D) $(10)_{10}$

Ans) $(10)_{10} = 00010000$

$= 2^4 + 2^3 + 2^2 + 2^1 + 2^0$

$= 0 + 0 + 0 + 0$

$\frac{10}{16} = 0.625 \times 16 = 10 = (B)_{16}$

(I) $(101010)_{10} = (\ )_8$

(Ans) $(101010)_{10} = 2^5 + 2^4 + 2^3 + 2^2 + 2^1 + 2^0$

$= 32 + 0 + 8 + 0 + 2 + 0 = (42)_{10}$

$\Rightarrow$ Now

$\frac{42}{8} = 5.25 = 0.25 \times 8 = 2$

$\frac{5}{8} = 0.625 \times 8 = 5$

$\Rightarrow (25)_8$

(4) Zuhaibur Rehman (13212)

(G) $(7777)_8 \Rightarrow \frac{7777}{16} = 486.062 = 0.062 \times 16 = 0$

(AY)

$\frac{486}{16} = 30.375$ $\quad 0.375 \times 16 = 6$

$\frac{30}{16} = 1.875$ $\quad 0.875 \times 16 = 14$

$\frac{1}{16} = 0.0625 \times 16 = 1$

$= (06E1)_{16}$

(J)

(A) $(98)_{10}$

$(1001\ 1000)$ BCD Ans.

(5) Zuhaibur Rehman (13212)

Q2 $\overline{A\bar{B}(C+\bar{D})}$

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

$= \bar{A}\,\bar{\bar{B}} + \bar{C} + \bar{\bar{D}}$

$= \bar{A}\,B + \bar{C} + D$ Ans.

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

Sol $\bar{A}\cdot\bar{\bar{B}}\cdot\bar{C}\cdot\bar{\bar{D}} + \bar{A}+\bar{B}+\bar{C}+\bar{D}$

$= \bar{A}\cdot B\cdot\bar{C}\cdot D + \bar{A}+\bar{B}+\bar{C}+D$ Ans.

Q3) $\bar{x}\bar{y}\bar{z} + \bar{x}y\bar{z} + x\bar{y}z + \bar{x}yz + xy\bar{z}$

A) Sol

x	y	z	X
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0

← Truth Table

(6) Zuhaib ur Rehman (13212) (7)

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

Sol

A	B	C	D	X
0	0	0	0	1
0	0	0	1	0
0	0	1	0	1
0	0	1	1	1
0	1	0	0	0
0	1	0	1	0
0	1	1	0	1
0	1	1	1	0

← Truth Table

Q4) $B + C[BD + (C + \bar{D})E]$

Sol $B + C[BD + EC + E\bar{D}]$

2) $B + CBD + CEC + CE\bar{D}$ $C \cdot C = C$

2) $B + CBD + CE + CE\bar{D}$ Ans.

(13212) (7) Zuhaib-urRehman (13212)

B) $BC(\bar{C}\bar{D} + CE)$

Ans) $= BC\bar{C}\bar{D} + BCCE$ $\quad C \cdot \bar{C} = C$

$= 0 + BCCE$ $\quad C \cdot C = C$

$\Rightarrow BCE$ Ans

A) $BC + DE(B\bar{C} + DE)$

Sol $= BC + DEB\bar{C} + DEDE$ $\quad A \cdot A = A$

$\Rightarrow BC + DEB\bar{C} + DE$ Ans.

C·C=C