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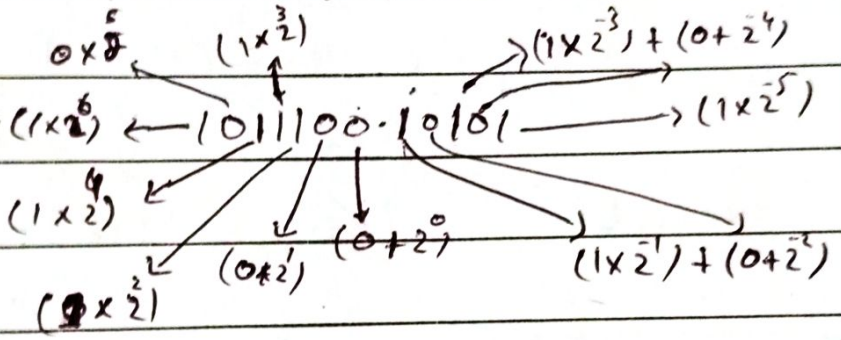
Section :- B 3rd team
BS (SE)

Q No :-

(A)

Binary to octal

= $(1011100.10101)_2$ = $(\cdots)_{10}$



$= (1\times2^{6})+(0+2^{5})+(1+2^{4})+(1\times2^{2})+(0\times2^{1})$
$+(0\times2^{0})+(1\times2^{-1})+(0\times2^{-2})+(1\times2^{-3})+(0\times2^{-4})+(1\times2^{-5})$

$= 64+0+16+8+4+0+0+0.5+0.00+0.125+$
$0.0000+0.03125$

$= (92.65625)_{10}$

(B) Binary to Octal

$(1111100.101)_2$ = $(\cdots)_{10}$

$= (1\times2^{5})+(1\times2^{4})+(1\times2^{3})+(1\times2^{2})+(0\times2^{1})+(0\times2^{0})$
$+(1\times2^{-1})+(0\times2^{-2})+(1\times2^{-3})$

$= 32+16+8+4+0+0+0.5+0.00+0.125$

$= 60.625$

(C)

A = (1010)

B = (1011)

C = (1100)

D = (1101)

$(ABCD)_{16} = (1010\,1011\,1100\,1101)_2$

(D)

10 ÷ 8 = 1 Remainder 2

1 ÷ 8 = 0 Remainder 1

12

result $(10)_{10} = (12)_8$

(E)

(7777)

$= (7 \times 8^3) + (7 \times 8^2) + (7 \times 8^1) + (7 \times 8^0)$

$= 3584 + 448 + 56 + 7$

$= 4095$

4095 ÷ 2 = 2047 R = 1

2047 ÷ 2 = 1023 R = 1

1023 ÷ 2 = 511 R = 1

511 ÷ 2 = 255 R = 1

255 ÷ 2 = 127 R = 1

127 ÷ 2 = 63 R = 1

63 ÷ 2 = 31 R = 1

31 ÷ 2 = 7 R = 1

15 ÷ 2 = 3 R = 1

3 ÷ 2 = 1 R = 1

1 ÷ 2 = 0 R = 1

(11111111111)

(F) $(7777)_7 = (\cdots)_2$

7 7 7 7

111 111 111 111

$(111111111111111)_2$ Ans

(i) $(101010)_{10} = (\cdots)_8$

$\frac{101010}{8}$ = 12626.25 → 0.25 × 8 = 2

$\frac{12626}{8}$ = 1578.25 → 025 × 8 = 2

$\frac{1578}{8}$ = 197.25 → 0.25 × 8 = 2

$\frac{197}{8}$ = 24.625 → 0.625 = 5

$\frac{24}{8}$ = 3 → 0

$\frac{3}{8}$ = 0.375 → 375 × 8 = 3

$(305222)_8$

QNO3

Part(A)

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

Solution $\bar{x}\bar{y}\bar{z} + \bar{x}y\bar{z} + x\bar{y}z + \bar{x}yz + xy\bar{z}$

$= 000 + 010 + 101 + 011 + 110$

$\Sigma(x,y,z) = \{0,2,5,3,6\}$

Truth table

x	y	z	R
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	0
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0

Q.NO 3

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

Solution

$\bar{A}\bar{B}C\bar{D} + AB\bar{C}\bar{D} + \bar{A}\bar{B}CD + \bar{A}\bar{B}\bar{C}\bar{D}$

$\sum(A, B, C, D) \leq (2, 12, 3, 0)$

Truth Table

A	B	C	D	R
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	0
0	1	1	1	0
1	0	0	0	0
1	0	0	1	0
1	0	1	0	0
1	0	1	1	0
1	1	0	0	1

Date _____ (6) Day M T W T F S

QNO4 (A)

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

Solution

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

Taking Complement

$$x = (BC + DE(B\bar{C} + DE))'$$

$$x = B\bar{C}\,(DE(B\bar{C} + DE))'$$

$$x = (\bar{B} + \bar{C})\,[(D\bar{E}) + (B\bar{C} + \bar{D}\bar{E})]$$

$$x = [\bar{B} + \bar{C})\,(D\bar{E}) +)(B\bar{C} + D\bar{E})$$

$$x = (B\bar{} + \bar{C}) + (CD + B\bar{C} + D\bar{E}))$$

Date

P(7)

Day M T W T F S

Q1V04

Part B

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

Taking C -

$$\bar{y} = \overline{BC(C\bar{D} + C\bar{E})}$$

$$\bar{y} = \overline{B\bar{C} + C\bar{D} + C\bar{E}}$$

$$\bar{y} = \bar{B} + \bar{C} + (\bar{C} + \bar{D})(\bar{C} + \bar{E})$$

$$\bar{y} = \bar{B} + \bar{C} + [\bar{C} + \bar{D}](\bar{C} + \bar{E})$$

Again I C

$$(\bar{y}) = (\bar{B} + \bar{C})(\bar{C} + \bar{D})(\bar{C} + \bar{E})$$

$$y = (\bar{B} + \bar{C})(\bar{C} + \bar{D}) + (\bar{C} + \bar{E})$$

$$y = \overline{(\bar{B} + \bar{C})}\ \overline{(\bar{C} + \bar{D})}\ \overline{(\bar{C} + \bar{E})}$$