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DLD - Assignment #01

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BS-CS (2D)

Signed Magnitude form

Num:

1's complement

2's complement

7	0111	0000 0111	0000 0111
6	0110	0000 0110	0000 0110
5	0101	0101	0101
4	0100	0100	0100
3	0011	0011	0011
2	0010	0010	0010
1	0001	0001	0001
0	0000	0000	0000
-1	1000	1111	1000
-2	1010	1101	1110
-3	1011	1100	1101
-4	1100	1011	1100
-5	1101	1010	1011
-6	1110	1001	1010
-7	1111	1000	1001
-8	1000	1111	1000

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Q No 2:- Convert- 110111101.1011 binary number to decimal number using sum of weight and repeated division/multiplication method.

$$110111101.1011$$

$$2^8 + 2^7 + 2^6 + 2^5 + 2^4 + 2^3 + 2^2 + 2^1 + 2^0 \cdot 2^{-1} + 2^{-2} + 2^{-3} + 2^{-4}$$

Bits that are on are given below.

$$256 + 128 + 64 + 32 + 16 + 8 + 4 + 2 + 1 + 0.5 + 0.25 + 0.125 + 0.0625$$

$$445 + 0.6875$$

$$\boxed{= 445.6875} \text{ Answer.}$$

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$$65536 + 16384 + 4096 + 128 + 64 + 16 + 8 + 2 + 1$$

10101000011011011

Now the fraction Part will be

$$0.876 \times 2 = 1$$

$$1.752 \times 2 = 1$$

$$1.504 \times 2 = 1$$

⋮

$$= 10101000011011011.111$$

Answer.

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Q NO 3

Part (b)

2	86235	
2	43117	1
2	21558	1
2	10779	0
2	5389	1
2	2694	1
2	1347	0
2	673	1
2	336	1
2	168	0
2	84	0
2	42	0
2	21	0
2	10	1
2	5	0
2	2	1
	1	0

= 10101000011011011.111

Ans.

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Q404: Convert the Decimal number
- 412.390625 to a Binary Number.

$$\begin{aligned} 412 &= 256 + 156 \\ &= 256 + 128 + 28 \\ &= 256 + 128 + 16 + 12 \\ &= 256 + 128 + 16 + 8 + 4 \end{aligned}$$

110011100.

Now.

$$0.390625 \times 2 = 0$$

$$0.781250 \times 2 = 1$$

$$1.56250 \times 2 = 1$$

$$1.1250 \times 2 = 0$$

$$0.1250 \times 2 = 0$$

$$0.50 \times 2 = 1$$

$$1.0$$

So Binary form is

110011100.011001

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(7)

Q NO 5: Convert the Binary Number
to Decimal Number.

1101101100010110011101011011

$$2^0 + 2^1 + 2^3 + 2^4 + 2^6 + 2^7 + 2^9 + 2^{10} + 2^{14} + 2^{16} + 2^{17} + 2^{20} + 2^{21} + 2^{22} + 2^{24} + 2^{26} + 2^{27} + 2^{28} + 2^{29} + 2^{30} =$$

$$= 3680685751$$

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