Date
13/09/21

Classwork-2

1. Convert 11011.101_2 to decimal.

Soln:

$1\times2^{-3} + 0\times2^{-2} + 1\times2^{-1} + 1\times2^{0} + 1\times2^{1} + 0\times2^{2} + 1\times2^{3} + 1\times2^{4}$

$= 1\times\frac{1}{8} + 0 + 1\times\frac{1}{2} + 1 + 2 + 0 + 8 + 16$

$= 0.125 + 0.5 + 3 + 24$

$= 0.625 + 27$

$= 27.625_{10}$ //

2. Convert 1001011_2 to decimal.

Soln:

$1\times2^{0} + 1\times2^{1} + 0\times2^{2} + 1\times2^{3} + 0\times2^{4} + 0\times2^{5} + 1\times2^{6}$

$= 1 + 2 + 0 + 8 + 0 + 0 + 64$

$= 3 + 72$

$= 75_{10}$ //

3. Convert 163.875_{10} to Binary.

Soln:

2	163
2	81 – 1
2	40 – 1
2	20 – 0
2	10 – 0
2	5 – 0
2	2 – 1
	1 – 0

$163_{10} = 10100011_2$

$0.875 \times 2 = 1.75 \rightarrow 1$

$0.75 \times 2 = 1.5 \rightarrow 1$

$0.5 \times 2 = 1.0 \rightarrow 1$

$163.875_{10} = 10100011.111_2$ //

4. Convert 105.15_{10} to Binary.

Soln:

2 | 105	
2 | 52 – 1	
2 | 26 – 0	
2 | 13 – 0	
2 | 6 – 1	
2 | 3 – 0	
1 – 1	

$0.15 \times 2 = 0.3 \rightarrow 0$

$0.3 \times 2 = 0.6 \rightarrow 0$

$0.6 \times 2 = 1.2 \rightarrow 1$

$\therefore 105_{10} = 1101001_2$

$\therefore 105.15_{10} = 1101001.001_2$ //

5. Convert 4057.06_8 to decimal.

Soln:

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

$= 6 \times 1/64 + 0 + 7 + 40 + 0 + 4 \times 512$

$= 0.09375 + 47 + 2048$

$= 2095.09375_{10}$ //