Final : Question 6

1.) a.) 5.75 base 10 → 5.C base 16 → 0101.1100 base 2 → 5.6 base 8

5 .75 x 16 = 12 - C

Hex ↑ Binary ↑ Octal ↓

b.) 0.9 base 10 → 0.E$\overline{6}$ base 16 → 0.1110$\overline{0110}$ base 2 → 0.7$\overline{1463}$ base 8

Hex ↑ Binary ↑ Octal ↑

.9 x 16 = 14.4 = E

.4 x 16 = 6.4

.4 x 16 = 6.4

c.) 99.7 base 10 → 63.B$\overline{3}$ base 16 → 01100011.1011$\overline{0011}$ base 2 → 143.5463$\overline{1463}$ base 8

Hex ↑ Binary ↑ Octal ↑

$16\overline{)99}$ 6, -96, 3 → 63

.7 x 16 = 11.2 - B

.2 x 16 = 3.2

.2 x 16 = 3.2

2.) a.) 0.101.1100 base 2

↳ 0.1011100×2^3

3 = 0000 0011

0.101 1100	0000 0000	0000 0000	0000 0011
5 C	0 0	0 0	0 3

2) b.) $0.111\overline{00110}$ base 2

$\rightarrow 0.111\overline{00110} \times 2^{0}$

0.111	0011	0011	0011	0011	0011	0000	0000
7	3	3	3	3	3	0	0

2.) c.) $011.00011.1011\overline{0011}$ base 2 $\quad 7 = 0000\ 0111$

$\Rightarrow 0.11000111011\overline{0011} \times 2^{7}$,

0.110	0011	1011	0011	0011	0011	0000	0111
6	3	B	3	3	3	0	7

3.) a.) 5.75 base 10 $\rightarrow$ 5.C base 16

$\Rightarrow 5C \times 16^{-1} = 8WD\ 4BP$

3.) b.) 0.9 base 10 $\rightarrow$ 0.E$\overline{6}$ base 16

$\Rightarrow \underline{E666} \times 16^{4} = 16WD\ 16BP$

3.) c.) 99.7 base 10 $\rightarrow$ 63.B$\overline{3}$

$\Rightarrow \underline{63}\underline{B3}\underline{33} \times 16^{4} = 24WD\ 16BP$

4.) a.) $5C \times 16^{-1} = 8WD\ 4BP$

$8WD\ 4BP\ *\ 4WD\ 0BP = 12WD\ 4BP$

4.) b.) $E666 \times 16^{4} = 16WD\ 16BP$

$16WD\ 16BP\ *\ 4WD\ 0BP = 20WD\ 16BP$

4.) c.) $63B333 \times 16^{4} = 24WD\ 16BP$

$24WD\ 16BP\ *\ 4WD\ 0BP = 28WD\ 16BP$

5.) a.) 0101.1100 base 2

=> 1.011100×2^{2}

0(100 0000|1)011 1000|0000 0000|0000 0000

4 0 B 8 0 0 0 0

5.) b.) 0.1110 $\overline{0110}$ base 2

=> $1.1100\overline{110} \times 2^{-1}$

0(011 1111|0) 110 0110|0110 0110|0110 0110

3 F 6 6 6 6 6 6

5.) c.) 0110 0011.1011 $\overline{0011}$ base 2

=> $1.10001110110\overline{0011} \times 2^{6}$

0(100 0010|0) 110 0111|0110 0110|0110 0110

4 2 C 7 6 6 6 6