

Assignment - 1

i. 33_{10} ~~convert~~

i - $33_{10} \rightarrow 2_{10}$

2		33
2		16 - 1
2		8 - 0
2		4 - 0
2		2 - 0
		1 - 0

$\Rightarrow 100001_2$

ii - $33_{10} \rightarrow 2_8$

8		33
		4 - 1

$\Rightarrow 41_8$

$$\text{iii} - 33_{10} \rightarrow ?_{16}$$

$$\begin{array}{r|l} 16 & 33 \\ & 2 - 1 \end{array}$$

$$\Rightarrow 21$$

$$\textcircled{2} \quad 1110101_2$$

$$\text{i} - 1110101_2 \rightarrow ?_{10}$$

$$2^6 + 2^5 + 2^4 + 2^2 + 2^0 = 117_{10}$$

$$\text{ii} - 1110101_2 \rightarrow ?_8$$

$$1110101_2 = 117_{10}$$

$$\begin{array}{r|l} 8 & 117 \\ 8 & 14 - 5 \\ & 1 - 6 \end{array}$$

$$\Rightarrow 165$$

$$\text{iii} - 1110101_2 \rightarrow ?_{16}$$

$$\begin{array}{r|l} 16 & 117 \\ & 7 - 5 \end{array}$$

$$\Rightarrow 75$$

$$\textcircled{3} \quad 703_8$$

$$\text{i} - 703_8 \rightarrow ?_{10}$$

$$(7 \times 8^2) + (0 \times 8^1) + (3 \times 8^0) = 451_{10}$$

$$\text{ii} - 703_8 \rightarrow ?_2$$

$$703_8 = 451_{10}$$

$$\begin{array}{r|l} 2 & 451 \\ 2 & 225 - 1 \\ 2 & 112 - 1 \\ 2 & 56 - 0 \\ 2 & 28 - 0 \\ 2 & 14 - 0 \\ 2 & 7 - 0 \\ 2 & 3 - 1 \\ & 1 - 1 \end{array}$$

$$\Rightarrow 111000011_2$$

$$\text{iii} - 703_8 \rightarrow ?_{16}$$

$$\begin{array}{r|l} 16 & 451 \\ 16 & 28 - 3 \\ & 1 - 12 \end{array}$$

$$\Rightarrow 1C3$$

$$\textcircled{4} \quad 1AF_{16} \rightarrow ?_{10}$$

$$\therefore (1 \times 16^2) + (10 \times 16^1) + (15 \times 16^0) \\ = 431_{10}$$

$$\text{ii} - 1AF_{16} \rightarrow ?_2 \quad | \quad \text{iii} - 1AF_{16} \rightarrow ?_8$$

$$\begin{array}{r|l} 2 & 431 \\ 2 & 215 - 1 \\ 2 & 107 - 1 \\ 2 & 53 - 1 \\ 2 & 26 - 1 \\ 2 & 13 - 0 \\ 2 & 6 - 1 \\ 2 & 3 - 0 \\ & 1 - 1 \end{array}$$

$$\begin{array}{r|l} 8 & 431 \\ 8 & 53 - 7 \\ & 46 - 5 \end{array}$$

$$\Rightarrow 657$$

$$\Rightarrow 110101111_2$$