

# Lab # 3

$$\begin{array}{cccccc} & 7^4 & 7^3 & 7^2 & 7^1 & 7^0 \\ \#1. a \rightarrow & 1 & 2 & 3 & 4 & 5 \end{array}$$

$$\begin{aligned} &= (7^4 \times 1) + (7^3 \times 2) + (7^2 \times 3) + (7^1 \times 4) + (7^0 \times 5) \\ &= 2401 + 686 + 147 + 28 + 5 \\ &= 3267_{10} \end{aligned}$$

$$\begin{array}{cccc} b \rightarrow & 16^3 & 16^2 & 16^1 & 16^0 \\ & 2 & A & A & 3 \end{array}$$

$$\begin{aligned} &= (16^3 \times 2) + (16^2 \times A) + (16^1 \times A) + (16^0 \times 3) \\ &= (16^3 \times 2) + (16^2 \times 10) + (16^1 \times 10) + (16^0 \times 3) \\ &= 8192 + 2560 + 160 + 3 \\ &= 10915_{10} \end{aligned}$$

$$\begin{array}{cc} & 16^1 \quad 16^0 \\ c \rightarrow & 4B_{16} \rightarrow \text{base 10} \\ &= (16^1 \times 4) + (16^0 \times B) \\ &= (16^1 \times 4) + (16^0 \times 11) \\ &= 64 + 11 \\ &= 75_{10} \end{array}$$

$$\begin{array}{cc} \text{ii)} & 4B_{16} \rightarrow \text{base 2} \\ & \begin{array}{cc} 4 & B \\ \hline 0100 & 1011 \end{array} \end{array}$$

$$\begin{array}{cc} \text{iii)} & 4B_{16} \rightarrow \text{base 2} \rightarrow \text{base 8} \\ & \begin{array}{ccc} 1 & 1 & 3 \\ \hline 001 & 001 & 011 \end{array} = 113_8 \end{array}$$