

#4. a) $3,15_{10} \rightarrow \text{base } 2$

$$i) 3_{10} = 2^1 + 2^0 = 11_2$$

$$ii) 0,15_{10} = \text{base } 2 = 0,0010011001100\dots_2$$

$$\begin{aligned} 0,15 \times 2 &= 0,3 \times 2 \\ &= 0,6 \times 2 \\ &= 1,2 \times 2 \\ &= 0,4 \times 2 \\ &= 0,8 \times 2 \\ &= 1,6 \times 2 \\ &= 1,2 \times 2 \\ &= 0,4 \times 2 \\ &= 0,8 \times 2 \\ &= 1,6 \times 2 \\ &= 1,2 \times 2 \\ &= 0,4 \times 2 \\ &= 0,8 \dots \end{aligned}$$

$$\begin{aligned} 3,15_{10} &= 11,0010011001100\dots_2 \\ &= 1,10010011001100\dots \times 2^1 \end{aligned}$$

$$e = 1 + 1023 = 1024 = 2^{10} = 100000000000$$

$$\underbrace{0,1000000000000000}_{s} \underbrace{,10010011001100\dots}_{f}$$