

3.1)

$$\begin{aligned}
 \text{SEDA} &= 02A4 \\
 &= 0101111011010100 \quad \rightarrow \quad 0000111110100100 \\
 &= \begin{array}{cccc} 0101 & 1110 & 1101 & 0100 \\ 0000 & 011 & 1010 & 0100 \\ 0101 & 0111 & 0011 & 0000 \end{array} \\
 &= \begin{array}{cccc} 5 & 7 & 3 & 0 \end{array} \quad 16
 \end{aligned}$$

3.20)

$$\begin{aligned}
 &0x0C000000 \\
 &= 0000110000000000000000000000 \\
 &\Rightarrow \text{Left most bit is 0 so it's a positive} \\
 &\Rightarrow 1 \times 2^{27} + 1 \times 2^{26} = 134217728 + 67108864 \\
 &= 201326592 \\
 &\Rightarrow \text{Two's complement : } 201326592 \\
 &\text{Unsigned : } 201326592
 \end{aligned}$$

3.21)

$$\begin{aligned}
 &0x6C600000 \\
 &= 0000110000060000000000000006
 \end{aligned}$$

Take first 6 bits

$$\rightarrow 000011 = 3$$

\rightarrow The jal instructions as the opcode is 3

∴ instruction is jnl 0

3.22)

0x00000000

= 0000 1100 0000 0000 0000 0000 0000 0000

= 0 0001 1000 0000 0000 0000 0000 0000

⇒ Sign bit is 0 → positive

Exponent = 0001 1000

$$= 24 - 127 = -103$$

Function = 000...00

$$= 1 + 0.000...00$$

$$\begin{aligned} \Rightarrow X &= (-1)^0 \times (1 + 0.000...00) \times 2^{-103} \\ &= 1 \times 1 \times 2^{-103} \\ &= 9.860761315 \times 10^{-32} \end{aligned}$$