Computer Organization and Architecture

Lecture 01: Revision

1. Convert the following decimal numbers to binary form, octal, and hexadecimal

$(12)_{10}$ →	**$(58)_{10}$**→
$(25)_{10}$→	**$(82)_{10}$**→

2. The binary number for **$F7A9_{16}$** is →
3. The binary number **$10110011001010100010101 0_2$** can be written in Hexadecimal as →
4. How many bits are required to represent the following decimal number?

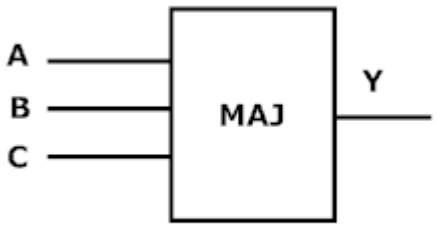
17→	35→
114→	81→

5. The word **STOP** in **ASCII** is →
6. Determine the **1's complement and 2's Complement** of each binary number

101→	101010101000→	10100→
11110000→	1010→	01001010→

7. How many bytes are in a 32-bit word→
8. Estimate the value of 2^{31} without using a calculator→
9. Describe the following ASCII code, it is given in Hexadecimal

59 4F 55 20 57 49 4C 4C 20 4E 4F 54 20 53 55 43 43 45 45 44 2E

A majority gate produces a TRUE output if and only if more than half of its inputs are TRUE. ▪ Complete a truth table for the three-input majority gate shown in Figure. ▪ Find the Boolean function of the circuit as sum-of-product ▪ Draw the logic diagram	 3-input majority gate
A three-input AND-OR (AO) gate shown in Figure below produces a TRUE output if both A and B are TRUE, or if C is TRUE. ▪ Complete the truth table for the function ▪ Write down the Boolean function in sum-of-product