Tutorial 3 (CSN-252)

1. The hexadecimal form of a 3-byte instruction for SIC/XE is 010030. The opcode in the instruction is LDA. Indicate the contents of the register A in decimal after the above instruction is executed. Be sure to indicate how you arrived at your answer.

2. IEEE 754 single precision floating point representation (in hex) of some numbers is given below. Write these numbers in base 10.
   (a) 3f 80 00 00
   (b) 7f 80 00 00

3. Consider the following SIC program

```
PZLE    START   1000
FIRST   LDX     ZERO
LOOP    LDA     TWO
        MUL     TWO
        STA     TWO
        TIX     K10
        JLT     LOOP
        RSUB
ZERO    WORD    0
TWO     WORD    2
K10     WORD            //some integer
        END     FIRST
```

   (i) If value at location K10 is (a) 4 (b) 5, what will be the value in word labelled as TWO when RSUB instruction is executed?

   (ii) How many times instruction / data will be fetched / stored in memory?

   (iii) Rewrite the program using SIC/XE instructions to reduce the number of memory references.

   (iv) What will be the contents of symbol table generated by the pass 1 of the SIC assembler for the above program?