1. An instruction encoding uses 5 bits for encoding the *opcode*. One of the 5-bit patterns is used as a special case, in which case 3 other bits decide the actual opcode. How many unique opcodes can this computer have?

2. The following bit pattern represents a floating-point number in the IEEE 754 format. What is the decimal equivalent of the value stored in the bit pattern: 10111111110100000000000000000000?

3. What are the decimal equivalents of the largest and smallest positive numbers that can be represented in the IEEE single precision format?

4. Explain why biasing (excess 127 code) of exponent is done in the IEEE format?

5. Explain with the help of an example why it is advantageous to encode signed integers in the 2’s complement number system at the ISA level.

6. Explain the implications (positives as well as negatives) of introducing many instructions into the ISA.