No.: _____   Name: _____

Computer Science
Homework for Chapter 1

_____1. The bit pattern 1010101111001101 can be represented in hexadecimal notation as
    A. 795C   B. ABCD   C. D56F   D. B49F

_____2. Which of the following systems is least efficient when encoding numeric values?
    A. Two's complement notation   B. Excess notation
    C. ASCII   D. Floating-point notation

_____3. Using a two's complement notation system in which each value is represented by a
    pattern of six bits, represent the value -13.
    A. 110011   B. 111001   C. 111101   D. 001101

_____4. Which of the following is the binary representation of 6 3/8?

    A. 100.11   B. 100.011   C. 110.11   D. 110.011

_____5. Which of the following values cannot be stored accurately using a floating-point
    format in which the most significant bit is the sign bit, the next three bits represent
    the exponent field in excess notation, and the last four bits represent the mantissa?

    A. 2 1/2   B. 3/16   C. 7   D. 6 1/4

_____6. Which of the following is a means of encoding music?

    A. ASCII   B. MIDI   C. JPEG   D. GIF

_____7. Which of the following mass storage system does not require physical motion?

    A. Magnetic tape   B. Magnetic disk   C. DVDs   D. Flash drives

8-10. The following is an error-correcting code in which any two patterns differ by a
    Hamming distance of at least three.
        Symbol   Representation
        A   000000
        B   001111
        C   010011
        D   011100
        E   100110
        F   101001
        G   110101
        H   111010

Decode each of the following patterns

_____ 010000
_____ 101010
_____ 010010

11. In the following table, connect the term to each phrase that gives the best description of
the term.   (50%)

Term		Descriptive Phrase
buffer	____	**A.** A means of encoding whole numbers
GIF	____	**B.** A storage area used to hold data on a temporary basis, often as a step in transferring the data from one device to another
key field	____	**C.** A means of compressing an image file by restricting the number of colors available
address	____	**D.** A system developed by the American Standards Institute for encoding text.
hexadecimal notation	____	**E.** A part of a logical record in a file used to identify the record.
LZW	____	**F.** A means of encoding numeric values that may involve fractions
ISO	____	**G.** A major standardization organization within the United States
truncation	____	**H.** An international organization for establishing standards
ANSI	____	**I.** A digital circuit capable of holding a single digit
Unicode	____	**J.** A means of encoding text in which each symbol is represented by 16 bits
flip-flop	____	**K.** A segment of a track in a mass storage system
two's complement notation	____	**L.** A numeric value used to identify a memory cell
JPEG	____	**M.** An error that may occur when using floating-point notation
sector	____	**N.** A means of compressing images by blurring the boundaries between different colors while maintaining all brightness information
floating-point notation	____	**O.** An efficient way of representing bit patterns
ASCII	____	**P.** An example of adaptive dictionary encoding