CSCI/CMPE 2333 Exam 1 Review

1. What are the four main functions of a computer?
2. List and briefly define the main structural components of a computer.
3. List and briefly define the main structural components of a processor.
4. Convert the following binary numbers to their decimal equivalents:

   a. 1100 b. 10011 c. 11100 d. 111100 e. 101010

5. Convert the following binary numbers to their decimal equivalents:

   a. 11100.011 b. 110011.1011 c. 10101010.1

6. Convert the following decimal numbers to their binary equivalents:

   a. 64 b. 100 c. 111 d. 145 e. 255

7. Convert the following decimal numbers to their binary equivalents:

   a. 34.75 b. 25.25 c. 27.1875

8. Convert the following hexadecimal numbers to their decimal equivalents:

   a. C b. 9F c. D52 d. 67E e. ABCD

9. Convert the following decimal numbers to their hexadecimal equivalents:

   a. 16 b. 80 c. 2560 d. 3000 e. 62,500

10. Convert the following decimal numbers to their hexadecimal equivalents:

    a. 204 b. 255 c. 631 d. 10000

11. Convert the following hexadecimal numbers to their binary equivalents:

    a. E b. 1C c. A64 d. 1F e. 239

12. Convert the following binary numbers to their hexadecimal equivalents:

    a. 1001 b. 1111 c. 110101 d. 011001 e. 10100111

13. Perform the following binary additions:

    a. 1111 1101 + 1011 1011
    b. 0110 1111 + 1101 0000
    c. 0111 1000 + 1000 0110
    d. 0111 1111 + 0110 1110

14. Perform the following 8-bit binary additions in two's complement. indicate if overflow occurs, and if there was a carry in the 9^{th} position.

b.	b.	c.	d.
1101 1101	0100 1111	1101 1001	0101 1111
1011 0011	1100 0110	1011 0110	0110 1000

15. Express the following numbers in IEEE 32-bit floating-point format:

a. -5 b. -6 c. -1.5 d. 384 e. 1/16 f. 9.25

16. The following numbers use the IEEE 32-bit floating-point format. What is the equivalent decimal value?

a. 1 10000011 11000000000000000000000
b. 0 01111110 10100000000000000000000
c. 0 10000000 00000000000000000000000

17. Wild Robbie Schweller has 8192 cans of protein powder. He wants to assign a unique binary number to each can starting from 0. How many bits does Robbie Schweller need? _____bits

18. Convert the following decimal numbers to their binary 8-bit equivalent in sign magnitude and two's complement.

a. -5 b. -6 c. -15 d. 38 e. 64

19. Convert the following binary numbers in two's complement to their decimal equivalents.

a. 10110011 b. 11000110 c. 11011001

20. Perform the following hexadecimal additions.

a.	b.	c.
D5	52	ABC
67	9F	DEF