Computer Logic 4

1. Two's complement allows us to represent negative as well as positive values:

   a. Convert the numbers 53 and 24 to 8-bit two's complement.

      Answer: 53: _____ 24: _____

   b. Use two's complement to subtract 24 from 53.

      Answer: _____

2. Computers deal with binary numbers.

   a. Express -64 in 8-bit two's complement.

      _____

   b. Express -71 in 8-bit two's complement.

      _____

   c. Add the two answers obtained for questions (2a) and (2b) above and store your answer in an 8-bit register.

   d. Check if your answer is correct? If not correct, what is this error called.

      _____

      _____

3. Computers store and process binary numbers.

    a. What will be the output after passing the bit pattern 100011111 through a NOT gate?

    _____

    b. The result of part [a] is said to be the one's complement. What needs to be done to obtain the two's complement?

    _____

    c. Two's complement numbers are used in the subtraction of binary numbers. Use 8-bit two's complement to subtract 27 from 55 (55_{10}-27_{10}).

    d. What is the largest two's complement number that can be stored in an 8-bit register?

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