

## CSE101 HOMEWORK#1

1. Represent the bit pattern 1111010010011011 in hexadecimal notation.

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2. A7DF is the hexadecimal representation for what bit pattern?

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3. How many different bit patterns can be formed if each must consist of exactly 6 bits?

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4. How many bits are needed to represent 1024 different bit patterns?

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5. Translate each of the following binary representations into its equivalent base ten representation.

A. 1100      \_\_\_\_\_

B. 10.011      \_\_\_\_\_

C. 0.01      \_\_\_\_\_

D. 10001      \_\_\_\_\_

6. Rewrite each of the following values (represented in base ten notation) in binary notation.

A. 7      \_\_\_\_\_

B. 23      \_\_\_\_\_

C.  $2 \frac{1}{4}$       \_\_\_\_\_

D.  $\frac{5}{8}$       \_\_\_\_\_

7. If the patterns 101.11 and 1.011 represent values in binary notation, what is the binary representation of their sum?

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8. Using a two's complement notation system in which each value is represented by a pattern of six bits, represent the value 5.

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9. Using a two's complement notation system in which each value is represented by a pattern of six bits, represent the value -5.

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10. What is the largest positive integer that can be represented in a two's complement system in which each value is represented by eight bits?

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11. What is the smallest negative integer that can be represented in a two's complement system in which each value is represented by eight bits?

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12. In a two's complement system, what value is represented by the pattern 111111111111001?

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13. When using two's complement notation, what bit pattern represents the negation of 01001010?

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