# MATHEMATICS AND COMPUTER HARDWARE – NUMBER SYSTEMS, NUMBER CONVERSION, BINARY ARITHMETIC - QUESTIONS AND ANSWERS

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| **Question** | The decimal number +125 can be represented in signed binary as: |
| **Answer** | 01111101  10000010  11111001  None of the above |

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| **Question** | The decimal number -36 is expressed in the 2’s complement form as: |
| **Answer** | 11011011  01011011  11011100  None of the above |

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| **Question** | The sum of 1010+10111 equals |
| **Answer** | 101101  111010  101111  110001 |

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| **Question** | The difference of 101-011 equals |
| **Answer** | 010  100  101  011 |

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| **Question** | The binary number 11012 is equal to the decimal number |
| **Answer** | 49  13  11  3 |

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| **Question** | When performing binary addition using the 2’s complement method, an overflow is indicated by a (n) \_\_\_\_\_\_\_\_\_ |
| **Answer** | Negative sign  Incorrect sign bit  Incorrect polarity  Incorrect sum |

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| **Question** | What is the BCD form of 438? |
| **Answer** | 1010000111000  010000111000  000110110110  0100000110100 |

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| **Question** | The highest decimal value that can be represented by a 4-bit binary number is \_\_\_\_\_\_\_\_\_\_\_\_ |
| **Answer** | 32  8  7  15 |

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| **Question** | Which of the following is the hexadecimal representation of binary number 1101001101? |
| **Answer** | D31  34D  C4D  D34 |

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| **Question** | Which of the following is the binary representation of decimal number 151? |
| **Answer** | 10110001  0151  11011  10010111 |

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| **Question** | What is the hex equivalent of the binary number 101010112 |
| **Answer** | 8516  E816  AB16  9B16 |

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| **Question** | Which of the following binary numbers is equal to 010100102 + 001100012? |
| **Answer** | 011100112  100000112  000000112  100000012 |

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| **Question** | Which of the following binary numbers is equal to 11112 + 11112? |
| **Answer** | 111102  None of the answers is correct  100002  11112 |

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| **Question** | Which of the following is the decimal representation of hexadecimal number 12316? |
| **Answer** | 80110  29110  12310  413110 |

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| **Question** | Which of the following is the number that is represented by 11101001 in 8-bit 2’s complement form? |
| **Answer** | 233  -9  9  -23 |

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| **Question** | Which of the following is the decimal representation of binary number 1000101? |
| **Answer** | 69  1000101.0  81  37 |

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| **Question** | Which of the following is the binary representation of decimal number 101110? |
| **Answer** | 10112  101110  1111110011  111110011 |

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| **Question** | What is the binary equivalent of 4F16? |
| **Answer** | 10011112  10011002  100011112  None |

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| **Question** | The decimal number -36 is expressed in the 2’s complement form as |
| **Answer** | 11011100  11011011  01011011  None of the above |

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| **Question** | In the 2’s complement form, the binary number 10010011 is equal to the decimal number |
| **Answer** | -109  +109  -19  +19 |

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| **Question** | Which of the following is the hexadecimal representation of decimal number 7522? |
| **Answer** | 26131  11362  1D62  26D1 |

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| **Question** | What is the value of the sum 225 + 345? |
| **Answer** | 445  1215  1115  1005 |

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| **Question** | What is the binary equivalent of 178? |
| **Answer** | 1011112  11112  100012  None of the above |

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| **Question** | In binary multiplication, 1 x 1 = \_\_\_\_\_\_\_\_\_\_ |
| **Answer** | 0 with a carry of 1  1 with a carry of 1  1  0 |

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| **Question** | In using the 2’s-complement system of subtraction, a negative number in the subtrahend would ultimately be changed to: |
| **Answer** | A negative number in true binary form  A positive number in true binary form |

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| **Question** | The 1’s complement of 10111001 is |
| **Answer** | 01000110  01000111  11000110  10111001 |

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| **Question** | The 2’s complement of 11001000 is |
| **Answer** | -109  +109  -19  +19 |

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| **Question** | Select the correct statement from the following: |
| **Answer** | The 2’s complement of the binary number 0001 is 1111  The 1’s complement of the binary number 0101 is 1011  BCD stands for Binary Code for Digital  LSB stands for Lowest Single Bit |

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| **Question** | Choose a correct statement from the following |
| **Answer** | The decimal number system is a weighted system with ten digits  LSB stand for lowest single bit  In binary, 1 + 1 = 2  The right-most bit in a signed binary number is the sign bit |

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| **Question** | In the 2’s complement form, the binary number 01110101 is equal to: |
| **Answer** | +117  -117  +10  -10 |

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| **Question** | In the 2’s complement form, the binary number 10010011 is equal to the decimal number |
| **Answer** | -109  +109  -19  +19 |