Quiz 1- Bits, Bytes, and Ints

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**Attempt 2**

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**Submission View**

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|  |  |  |
| --- | --- | --- |
| **Question 1** |  | 1 / 1 point |

In x86\_64 bit systems floats are 8 bytes.

|  |  |  |
| --- | --- | --- |
|  |  | True |
|  |  | False |
| **Question 2** | | |  | 1 / 1 point |

What is the value of z based on the following expression in C?

int z = 27 ^ 13;

|  |  |  |
| --- | --- | --- |
|  | 14 | |
|  | 8 | |
|  | 5 | |
|  | 22 | |
|  | 7 | |
|  | 15 | |
|  | 32 | |
| **Question 3** |  | 11 / 16 points | |

Consider a 7-bit two's complement representation. Fill in the following empty boxes:

**Provide your answers in binary representation unless explicitly asked for other representation:**

**Only accepted format for binary representation (MUST use 7-bits): 0000000, 1111111**

**TMAX:**

\_\_\_0111111\_\_\_(6.25 %)

**TMin:**

\_\_\_1000000\_\_\_(6.25 %)

**TMax+ TMin:**

\_\_\_1111111\_\_\_(6.25 %)

**TMax+ TMin (write in decimal representation):**

\_\_\_-1\_\_\_(6.25 %)

**TMin + TMin:**

\_\_\_0000000\_\_\_(6.25 %)

**TMin + 1:**

\_\_\_1000001\_\_\_(6.25 %)

**TMin + 1 (write in decimal representation):**

\_\_\_-32\_\_\_Incorrect Response**(-63)**

**TMin - 1:**

\_\_\_01111111\_\_\_Incorrect Response**(0111111)**

**TMin - 1 (write in decimal representation):**

\_\_\_63\_\_\_(6.25 %)

**-TMin:**

\_\_\_0111111\_\_\_Incorrect Response**(1000000)**

**-TMax:**

\_\_\_1000000\_\_\_Incorrect Response**(1000001)**

**TMAX<<2:**

\_\_\_1111100\_\_\_(6.25 %)

**TMAX<<2 (write in decimal representation):**

\_\_\_124\_\_\_Incorrect Response**(-4)**

**0111110 (write in hexadecimal representation):**

\_\_\_3E\_\_\_(6.25 %)

**0101010 & 0010110:**

\_\_\_0000010\_\_\_(6.25 %)

**0101010 ^ 0010110:**

\_\_\_0111100\_\_\_(6.25 %)

|  |  |  |
| --- | --- | --- |
| **Question 4** |  | 1 / 1 point |

Initialization

int x = foo();

int y = bar();

unsigned ux = x;

unsigned uy = y;

Based on above initialization check if the following statement is **always**true?

x <= 0  implies  -x >= 0

|  |  |  |
| --- | --- | --- |
|  |  | True |
|  |  | False |
| Hide question 4 feedback | | |
|  | |  |
| The statement is not true for Tmin.  -Tmin is equal to Tmin | | |

|  |  |  |
| --- | --- | --- |
| **Question 5** |  | 1 / 1 point |

Initialization

int a= foo();

int b = bar();

unsigned ua = a;

unsigned ub = b;

Based on above initialization, does the following expression **always**true?

a + b == ua+ ub

|  |  |  |
| --- | --- | --- |
|  |  | True |
|  |  | False |
| Hide question 5 feedback | | | |
|  | | |  |
| Two's complement and unsigned addition have the same bit-level behavior, so the comparison will be true. | | | |

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