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#### Quiz 2

Answer the 5 questions below. They all carry 1 mark.

### **Numerical Input**

1.0/1.0 point (graded)

Suppose we have a binary number =  $0.0001010 * 2^6$ . What should be the power of 2 if we normalize the given number? Write the decimal answer.

| 2      | •                             |
|--------|-------------------------------|
| 2      |                               |
| Submit | You have used 2 of 2 attempts |

#### **Numerical Input**

1.0/1.0 point (graded)

Suppose in a 20-bit register system, the binary encoded floating point numbers use 10 bits for storing fractions and 1-bit for sign.

In this system, what would be the bias term in decimal?

| 255 | <b>~</b> |  |
|-----|----------|--|
| 255 |          |  |
| A   |          |  |

Answer

Correct: Use the formula of bias for n-bit bias size: 2^(n-1)-1

Submit You have used 2 of 2 attempts

### **Multiple Choice**

1.0/1.0 point (graded)

Suppose you have implemented the following pseudocode in Fortran:

| int p = 13; //line #2   |
|---|
| x = y + 10; //line #3   |
| When the line #3 gets compiled into MIPS, which of the following instructions will be used by the compiler?   |
| addiu   |
| addu  |
| addi  |
| addui   |
| <b>✓</b>  |
| Submit You have used 1 of 1 attempt   |
| Multiple Choice  1.0/1.0 point (graded)  In a 4-bit architecture where registers are of size 4, if we Subtract 1111 from 0011, Will there be an overflow? Consider both numbers as 4-bit Signed Binary Numbers. |
| Yes   |
| No  |
| <b>✓</b>  |
| Submit You have used 1 of 1 attempt   |

# **Multiple Choice**

1.0/1.0 point (graded)

int q = 15; //line #1

Which of the following instruction moves the contents of floating point registers (coprocessor) to integer register file?

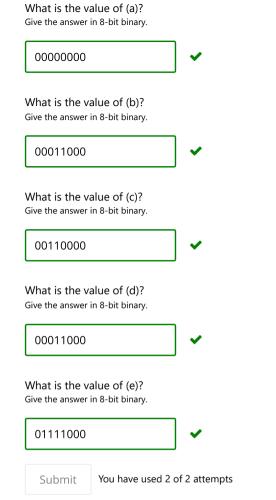
| omfc1        |  |
|--------------|--|
| mtc1         |  |
| Olwc1        |  |
| swc1         |  |
| mflo         |  |
| <b>~</b>     |  |
| Submit       | You have used 1 of 1 attempt   |
| The followin | g question has 5 parts. Each part carries 2 Marks. You can press the submit button maximum 2 times (Number of attempts: 2) |

# **Numerical Input**

10.0/10.0 points (graded)

In the given table, we are multiplying 1100 by 1010 with the regular **long-multiplication hardware**, where the Multiplicand and the product are stored in two seperate 8-bit registers, and the multiplier is stored in a 4-bit register. You need to complete the table and input the values, that are marked in the table, in the given input fields below.

| Iteration | Multiplier | Multiplicand | Product  |
|-----------|------------|--------------|----------|
| 0         | 1010       | 00001100     | 00000000 |
| 1         |            |              |          |
|           |            |              | (a)      |
| 2         |            |              |          |
|           |            |              | (b)      |
|           |            | (c)          |          |
| 3         |            |              |          |
|           |            |              | (d)      |
| 4         |            |              |          |
| _         |            |              |          |
|           |            |              | (e)      |



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