

## on IEEE 754 Floating Point

**Instructions:** For each question, choose the single best answer. Make your choice by clicking on its button. You can change your answers at any time. When the quiz is graded, the correct answers will appear in the box after each question.

- 1. What does the "IEEE" (as in "IEEE 754 Floating Point") stand for?
  - A. Industry Electrical Evaluation Enterprise
  - B. International Enterprise for Electronics Education
  - C. Institute of Electrical and Electronics Engineers
  - O. Interstate Engineering and Electrification Effort

С

- 2. How is  $1.234 \times 10^3$  normally written?
  - **A.** .0001234
  - B. 12.34
  - **C.** 123.4
  - **D**. 1234

D

- 3. Write 0.0345 in scientific notation
  - **A.**  $3.45 \times 10^{-2}$
  - $\bigcirc$  **B.** 3.45 × 10<sup>-3</sup>
  - $\bigcirc$  **C.** 3.45 × 10<sup>+3</sup>
  - $\bigcirc$  **D.** -3.45 × 10<sup>2</sup>

Α

- 4. Which part of  $1.2345 \times 10^{23}$  is the **mantissa**?
  - **A.** 23

- **B.** .2345
- **C.** 10
- **D.** 1.2345

D

5. Write 0.00623 in scientific notation.

- **A.**  $6.23 \times 10^{-3}$
- $\bigcirc$  **B.** .623 × 10<sup>-3</sup>
- $\bigcirc$  **C.** 6.23 × -10<sup>3</sup>
- $\bigcirc$  **D.** 6.23 × -10<sup>-3</sup>

Α

6. Which expression of the following is how  $1.223 \times 10^{-5}$  would appear in a source file.

- **A.** 1.223e05
- **B.** 1.223EE5
- **C.** 1.223e-5
- **D.** 1.223-5
- **E.** 1.223E^5

С

7. A 32-bit IEEE 754 float consists of three fields: sign bit, biased exponent, and mantissa. How many bits are in each one?

- **A.** 1, 12, 19
- **B.** 2, 15, 15
- **C.** 1, 8, and 23
- **D.** 1, 4, 27

С

8. Here is a formula that says how the three fields combine to represent a number: value =  $(-1)^s \times 1.M \times 2^{E-127}$ 

What biased exponent would be used to represent 2<sup>2</sup>?

- A. 3<sub>10</sub>, represented as 0000 0011
- B. -124<sub>10</sub>, represented as 1000 0100
- **C.** 128<sub>10</sub>, represented as 1000 0000
- D. 129<sub>10</sub>, represented as 1000 0001

D

- 9. Say that you wish to represent 001.0011<sub>2</sub> as a IEEE 754 float. What is the 23-bit mantissa?

  - C. 00110000000000000000000

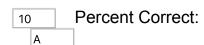
С

- 10. Say that you wish to represent 010.1011011<sub>2</sub> as a IEEE 754 float. What is the 23-bit mantissa?
  - ♠ A. 010110110000000000000000
  - B. 101011011000000000000000
  - **C.** 01011011000000000000000

Α

grade quiz

The number you got right:



100

Letter Grade:



If you have returned here from another page, or have re-loaded this page, you will need to click again on each of your choices for the grading program to work correctly. You may want to press the SHIFT KEY while clicking to clear the old answers.