Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Class\_\_\_\_\_\_\_\_\_

**Introduction to Robotics Part 5: Programming**

1. What is the main reason to write a computer program?

**A** to learn mathematics

**B** to understand technology

**C** to solve a problem

**D** to impress your friends

1. What does IDE stand for?

**A** Independent Device Enterprise

**B** Integrated Development Environment

**C** Iterating Decision Enclosure

**D** Instant Decision Environment

1. What does the term **int** in the following instruction mean?

***int bumper***

**A** bumper is a 16-bit variable

**B** bumper has an intermediate value

**C** bumper has a value between 0 and 255

**D** read the bumper switch to input a value

1. How do you know some typed text in C++ is actually a statement?

**A** it is terminated with a comma

**B** it is terminated with a semicolon

**C** it is enclosed by curly brackets

**D** it has a double slash in front of it

1. How do you know some typed text in C++ is a function?

**A** it is terminated with a comma

**B** it is terminated with a semicolon

**C** it is enclosed by curly brackets

**D** it has a double slash in front of it

1. What type of loop is a FOR loop?
   1. a counting loop
   2. a decision loop
   3. an infinite loop
   4. a conditional loop
2. What type of loop is a WHILE loop?

**A** a counting loop

**B** a decision loop

**C** an infinite loop

**D** a conditional loop

1. What type of loop is an IF loop?

**A** a counting loop

**B** a decision loop

**C** an infinite loop

**D** a conditional loop

1. What do you use in C++ to create a comment?

**A** it is terminated with a comma

**B** it is terminated with a semicolon

**C** it is enclosed by curly brackets

**D** it has a double slash in front of it

1. What is a microcontroller?

**A** a multipurpose programmable device

**B** a computer on a chip

**C** smallest standalone part of a computer program containing executable code

**D** a sequence of instructions that continually repeat

1. What two things does an IDE do?
2. What two things happen when you define a variable?
3. Describe the following computer program in as much detail as possible:

**void setup() {**

// **put your setup code here, to run once;**

**}**

**void loop() {**

// **put your main code here, to run repeatedly;**

**}**

**Matching:**

|  |  |
| --- | --- |
| 1. Machine language | 1. words and names defined as part of a computer language to perform specific tasks |
| 1. Statement | 1. a programming language understood by computers that consists entirely of numbers |
| 1. Computer program | 1. the set of rules that define how symbols and words are used in a programming language |
| 1. Syntax | 1. has only two values, zero and one |
| 1. Keywords | 1. smallest standalone part of a computer program containing executable code |
| 1. Function | 1. a sequence of instructions that are executed by a CPU |
| 1. Binary | 1. section of a computer program that performs a specific task |