Object-Oriented Programming concepts:

**Answers**

1. Real-world objects contain **state** and **behavior**.
2. A software object's state is stored in **fields**.
3. A software object's behavior is exposed through **methods**.
4. Hiding internal data from the outside world, and accessing it only through publicly exposed methods is known as data **encapsulation**.
5. A blueprint for a software object is called a **class**.
6. Common behavior can be defined in a **superclass** and inherited into a **subclass** using the **extends** keyword.
7. A collection of methods with no implementation is called an **interface**.
8. A namespace that organizes classes and interfaces by functionality is called a **package**.
9. The term API stands for **Application Programming Interface**.

Variables:

**Answers**

1. The term "instance variable" is another name for **non-static field**.
2. The term "class variable" is another name for **static field**.
3. A local variable stores temporary state; it is declared inside a **method**.
4. A variable declared within the opening and closing parenthesis of a method is called a **parameter**.
5. What are the eight primitive data types supported by the Java programming language? **byte, short, int, long, float, double, boolean, char**
6. Character strings are represented by the class **java.lang.String**.
7. An **array** is a container object that holds a fixed number of values of a single type.

Operators:

**Answers**

1. Consider the following code snippet:
2. arrayOfInts[j] > arrayOfInts[j+1]

**Question:** What operators does the code contain?  
**Answer:** >, +

1. Consider the following code snippet:
2. int i = 10;
3. int n = i++%5;
   1. **Question:** What are the values of i and n after the code is executed?  
      **Answer:** i is 11, and n is 0.
   2. **Question:** What are the final values of i and n if instead of using the postfix increment operator (i++), you use the prefix version (++i))?  
      **Answer:** i is 11, and n is 1.
4. **Question:** To invert the value of a boolean, which operator would you use?  
   **Answer:** The logical complement operator "!".
5. **Question**: Which operator is used to compare two values, = or == ?  
   **Answer:** The == operator is used for comparison, and = is used for assignment.
6. **Question:** Explain the following code sample: result = someCondition ? value1 : value2;  
   **Answer:** This code should be read as: "If someCondition is true, assign the value of value1 to result. Otherwise, assign the value ofvalue2 to result."

Expressions, Statements and Blocks:

**Answers**

1. Operators may be used in building **expressions**, which compute values.
2. Expressions are the core components of **statements**.
3. Statements may be grouped into **blocks**.
4. The following code snippet is an example of a **compound** expression.
5. 1 \* 2 \* 3
6. Statements are roughly equivalent to sentences in natural languages, but instead of ending with a period, a statement ends with a **semicolon**.
7. A block is a group of zero or more statements between balanced **braces** and can be used anywhere a single statement is allowed.