

# Class 9 chapter 3

## Elementary concept of object and class

### A. Tick (✓) the Correct Answer

1. A class consists of \_\_\_\_ and behavior which are used to create objects.
  - o **a. characteristics (✓)**
2. Examples of data types are
  - o **a. int, double (✓)**
3. Instance of a class is also called an/a
  - o **a. Object (✓)**
4. Mainframe computer is an object of
  - o **b. computer (✓)**
5. A class is a \_\_\_\_ data type.
  - o **b. User-defined (✓)**
6. The parts of an object are
  - o **d. All of these (✓)**

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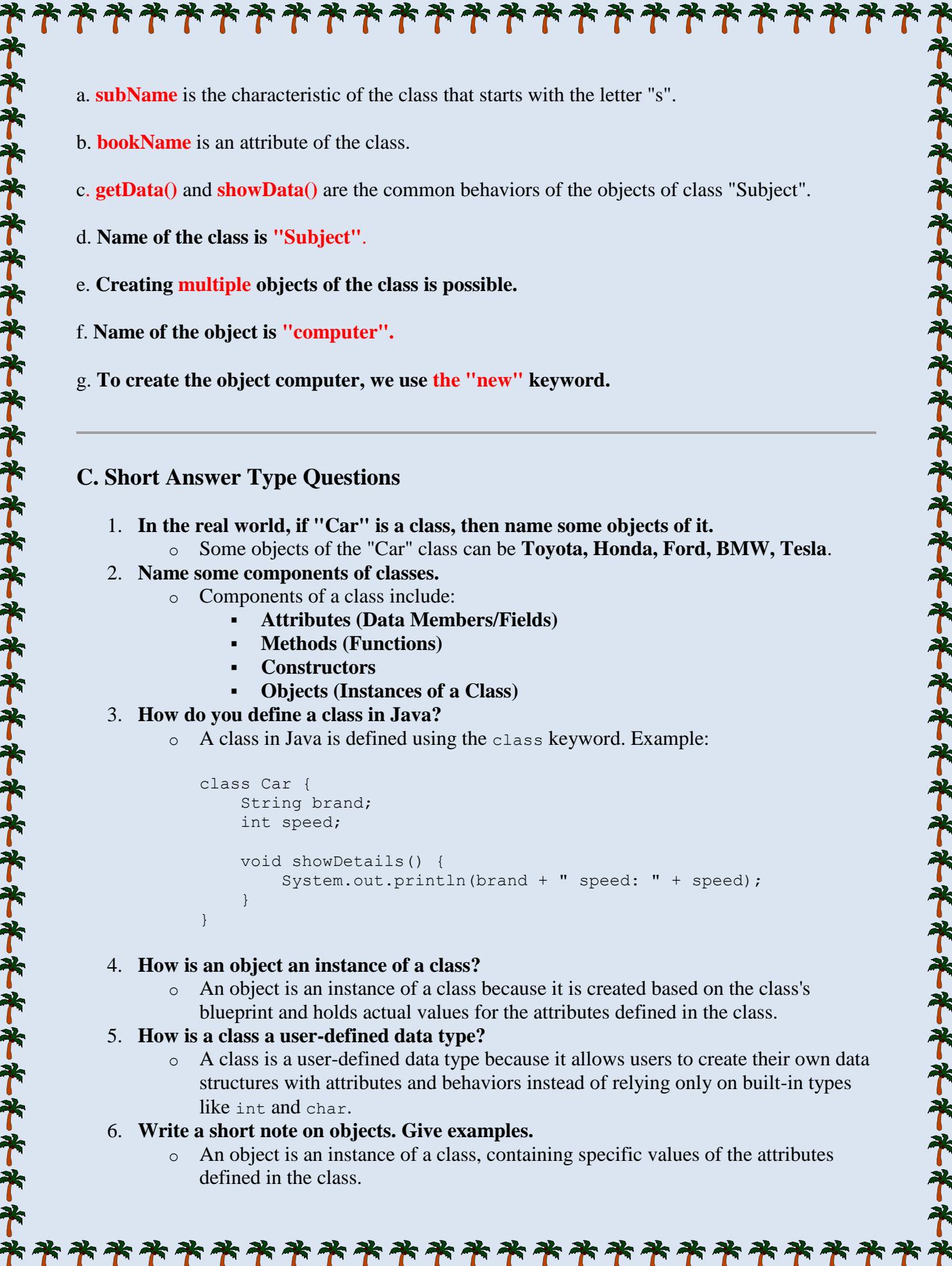
### B. Fill in the Blanks

1. An **object** is also called an instance of a class.
2. A class is a **blueprint** of objects.
3. A class **contains** data members and methods.
4. The state of an object is represented by the **attributes** of that object.
5. A class acts as a **template** as by using it similar types of objects are created.

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With reference to the given class declaration:

```
class Subject
{
    String subName;
    void getData();
    void showData();
}
Subject computer = new Subject();
```



- a. **subName** is the characteristic of the class that starts with the letter "s".
- b. **bookName** is an attribute of the class.
- c. **getData()** and **showData()** are the common behaviors of the objects of class "Subject".
- d. Name of the class is "**Subject**".
- e. Creating **multiple** objects of the class is possible.
- f. Name of the object is "**computer**".
- g. To create the object computer, we use **the "new"** keyword.

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### C. Short Answer Type Questions

- 1. In the real world, if "Car" is a class, then name some objects of it.
  - o Some objects of the "Car" class can be **Toyota, Honda, Ford, BMW, Tesla**.
- 2. Name some components of classes.
  - o Components of a class include:
    - **Attributes (Data Members/Fields)**
    - **Methods (Functions)**
    - **Constructors**
    - **Objects (Instances of a Class)**
- 3. How do you define a class in Java?
  - o A class in Java is defined using the `class` keyword. Example:

```
class Car {  
    String brand;  
    int speed;  
  
    void showDetails() {  
        System.out.println(brand + " speed: " + speed);  
    }  
}
```
- 4. How is an object an instance of a class?
  - o An object is an instance of a class because it is created based on the class's blueprint and holds actual values for the attributes defined in the class.
- 5. How is a class a user-defined data type?
  - o A class is a user-defined data type because it allows users to create their own data structures with attributes and behaviors instead of relying only on built-in types like `int` and `char`.
- 6. Write a short note on objects. Give examples.
  - o An object is an instance of a class, containing specific values of the attributes defined in the class.

- Example:

```
class Car {  
    String brand;  
    int speed;  
}  
  
Car myCar = new Car(); // "myCar" is an object of class  
"Car".
```

**7. Why is a class called a factory of objects? Explain with two examples.**

- A class is called a factory of objects because it acts as a blueprint from which multiple objects can be created.
  - **Example 1: Car Class → Objects: Toyota, Ford, BMW**
  - **Example 2: Student Class → Objects: Rahul, Priya, Sameer**

**8. Justify the statement: "Classes are also known as user-defined data types."**

- A class is a user-defined data type because it allows programmers to create their own structured data with attributes (variables) and behaviors (methods), unlike primitive data types like `int` or `char`.