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

**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.**

**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.**

**C. Short Answer Type Questions**

1. **In the real world, if "Car" is a class, then name some objects of it.**
   * Some objects of the "Car" class can be **Toyota, Honda, Ford, BMW, Tesla**.
2. **Name some components of classes.**
   * 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?**
   * 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);

}

}

1. **How is an object an instance of a class?**
   * 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.
2. **How is a class a user-defined data type?**
   * 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.
3. **Write a short note on objects. Give examples.**
   * 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".

1. **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**
2. **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.