

Course Code: CSE 201 Course Title: Object-Oriented Programming I

Credit: 3

Time: 1.00 Hour.

Full Ma

There are **Three** Questions. Answer all of them. Part marks are shown in the margins.

1. a. Explain different types of access modifiers in Java with proper examples.
- b. Write a java program that will declare 2 arrays of size n (you can take the array elements as input from the user) and create a 3rd array of the same size in such a way that the p^{th} index of the 3rd array contains the total number of elements of the 2nd array which are greater than the p^{th} index of the 1st array.
For example, if the 2 arrays are {1,3,6,2} and {2,3,4,5} then your program should generate a 3rd array with elements {4,2,0,3} and print the array as well. (N.B. Here the first element of the 1st array is 1 and all four elements of the 2nd array are greater than 1, that's why the first element of the 3rd array is 4.)
2. a. Create a class named "**Gadget**" with instance variables: **brand, model, and price.**
- i) Implement a constructor to initialize these variables.
- ii) Implement the following methods:
- **public String getBrand():** Returns the **brand** of the gadget. Also, prints a message indicating the brand of the gadget.
 - **public void setPrice(double newPrice):** Updates the **price** of the gadget to the newPrice. Also, display the updated price.
 - **public boolean isAffordable():** Returns true if the **price** of the gadget is less than or equal to 1000, otherwise returns false. Also, display whether the gadget is affordable.

- b. Create a class named "TestGadget" with a main method.

In the main method, perform the following steps:

- i) Create an object of the Gadget class with the **brand** as "Samsung", **model** as "Galaxy S20", and **price** as \$999.99. Store the reference of the object in a variable named **myGadget**.
- ii) Call the **setPrice(...)** method using **myGadget** variable and pass 1100 as the value of the parameter.
- iii) Call the **isAffordable()** method using **myGadget** and print the output of this method call.
- iv) What is the output of the previous step (iii)?

Identify the errors in the code below. Also, fix the errors.

```

1 package mid;
2
3 public class Exam {
4     String semester;
5     public static double totalMarks;
6     private double attainedMarks;
7
8     public static void updateInfo(String sem, double tMark)
9     {
10         semester = sem;
11         totalMarks = tMark;
12     }
13 }

```

```

1 package mid.fall;
2
3 public class Test {
4
5     public static void main(String[] args)
6     {
7         Exam exam = new Exam("Fall 2023", 15);
8         exam.attainedMark = 10.5;
9         Exam.updateInfo("Fall 2023", 20);
10    }
11 }

```