University of Sargodha

20BSIT 20813

BS 2nd Semester/Term Exam 2021

Subject: I.T/SE **Paper: Object Oriented Programming (CMPC-102/CMP-2123)**

Time Allowed: 02:30 Hours **Maximum Marks: 40**

Note: Objective part is compulsory. Attempt any three questions from subjective part.

Objective Part (Compulsory)

Q.1. Write short answers of the following in 2-3 lines each on your answer sheet. (2*8)

i. What are manipulators?
ii. What is a friend function?
iii. What is a ternary operator?
iv. What is difference between JDK and JRE?
v. Differences between "this" and "super" keywords?
vi. Can java support multiple inheritance? Justify your answer?
vii. What do you mean by Checked Exceptions?
viii. What is the output of the following?

```
class Test
{
public static void main (String args[])
{
System.out.println(20 + 30 + "Javatpoint");
System.out.println("Javatpoint" + 20 + 30);
}
}
```

Subjective Part (3*8)

Q.2. Write a program that shows a constructor passing information about constructor failure to an exception handler. Define class SomeClass, which throws an Exception in the constructor. Your program should try to create an object of type SomeClass and catch the exception that's thrown from the constructor.

Q.3. Write a Java application that uses the Math class to determine the answers for each of the following:

a. The square root of 30
b. The sine and cosine of 100
c. The value of the floor, ceiling, and round of 44.7
d. The larger and the smaller of the character K and the integer 70.

Q.4. Develop a program to read a text file. Process the read text by using String class methods in the following order:

i. Convert all text into lower case (Hint use String's tolower method)
ii. Count no. of words in the text (Hint use String' split method).

Q.5. Write a class named ShowStudent that instantiates a student object from the class you created and assign values to its fields. Compute the Student grade point average, and then display all the values associated with the student.

Q.6. A publishing company that markets both book and audiocassette versions of its works. Create a class called publication that stores the title (type string) and price (type float) of a publication also has an abstract method "Oversize ()". From this class derive two classes: book, which adds a no of page (type int) and tape: which adds a playing time in minutes (type float). Each of the three classes should have a getdata() methods to get its data from the user from the keyboard, and a Setdata () method to display the data. Override the "Oversize ()" method to the book and tape classes. Let's say that a book with more than 500 pages, or a tape with a playing time longer than 90 minutes, is considered oversize. You can access this method from main () and display the string "Oversize" for oversized books and tapes when you display their data. Demonstrate polymorphic behavior by using these classes.
