B.Tech - Even Sem : Semester in Exam-I
Academic Year:2020-2021

19cs1203 - OBJECT ORIENTED PROGRAMMING
Set No: 2

Time:				Max.Marks: 50			
S.NO	Answer All Questions	Choice	Options	Marks	CO	CO BTL	COI BTL
1.	Define the terms class and object and explain about access specifiers.	choice Q-2		4.5Marks	CO1	3	2
2.	Draw the class diagram for the following and Develop a java program that reads the number of kilograms of type double, through console, converts it to pounds, displays the result. (HINT: 1 kg = 2.2046 pounds).			4.5Marks	CO1	3	2
3.	Assume a class Book with the following attributes – ISBN (long), Title (String), Price (double) with private access. Draw the class diagram and develop code. Write the accessor, mutator methods and toString() method.	choice Q-4		8Marks	CO1	3	2
4.	Draw the class diagram and Develop logic to read marks of 6 subjects specified as command line arguments, find the average and maximum secured.			8Marks	CO1	3	2
5.	Modularize to package level and draw the class diagram. A cab booking app is to be launched. The task is to store data of Passengers in a class with private attributes Name, Mobile, distance and fare. Write mutators for a) name b) mobile c) distance - must be a positive value (in terms of kms) – Validate this value in setter. Develop a method computeFare() that computes fare at the rate of Rs.10 per km and toString() method to print data.	choice Q-6		12.5Marks	CO1	3	3
6.	Modularize to package level and draw the class diagram for the following-The class Course has the following private fields: courseCode, CourseTitle (both of type String) and credits (type int). It also contains accessors and mutators for each attribute. Validate the following in mutators: 1. courseCode must have 6 characters (only digits and characters) 2. credits must be a positive value less than 6. Also code the toString () method to display the data. Develop the CourseDemo class with main() method and test the capabilities of Course class.			12.5Marks	CO1	3	3
7.	Draw the class diagram and code the class TwoDimensionalPoint with 2 attributes x and y. Also write a parameterized constructor.	choice Q-8		4.5Marks	CO2	3	2
8.	Draw the class diagram and code the class Loan with attributes loanAmount, numberOfYears and annualROI. Write a no-argument constructor that sets all attributes to 0 and parameterized constructor that sets the loan amount to 1 lakh and number of years to			4.5Marks	CO2	3	2

	3. Chain the parameterized constructor with no-argument constructor such that annualROI is also set to 0.				
9.	Draw the class diagram and code the class Triangle with base and height as private attributes of type double. Define a no argument constructor and overload it with a parameterized constructor. Also write a method area() that computes the area of triangle and returns the result and code the toString() method. (Hint: Area of triangle = 0.5 * base * height)	choice Q-10	8Marks	CO2 3	3
10.	Let s1 be " Welcome " and s2 be " welcome ". Write the code for the following statements and justify the answer. (a) Check whether s1 has the prefix AAA and assign the result to a Boolean variable b. (b) Check whether s1 has the suffix AAA and assign the result to a Boolean variable b. (c) Create a new string s3 that appends s1 with s2. (d) Create a substring of s1 starting from index 1. (e) Create a substring of s1 from index 1 to index 4. (f) Compare the 2 strings case insensitively. (g) Compare the 2 strings case sensitively. (h) Print the first occurrence of 'e' in s1.		8Marks	CO2 3	2
11.	Draw the class diagram modularized to package level and code the class named LinearEquation for a 2 * 2 system of linear equations: $ax + by = e$, $cx + dy = f$. The solutions are $x = (ed - bf)/(ad - bc)$, $y = (af - ec)/(ad - bc)$. The class contains: Private data fields a, b, c, d, e, and f.(All fields of type int) A constructor with the arguments for a, b, c, d, e, and f. A method named isSolvable() that returns true if ad - bc is not 0. Methods getX() and getY() that return the solution for the equation. Write a test program that prompts the user to enter a, b, c, d, e, and f and displays the result. If ad - bc is 0, report that "The equation has no solution."	choice Q-12	12.5Marks	CO2 3	3
12.	Modularize the design to package level and develop the code. A vehicle registration portal accepts the following data from Vehicle owners: a) Vehicle Number b) Wheeler (either 2 or 4) - validate in setter c) Owner name d) Mobile The Vehicle class contains parameterized constructor, toString() methods. The VehicleDemo class has a main () method which reads and stores data of 5 vehicles and displays the menu with following operations: a) Add data b) Display data based on vehicle number.		12.5Marks	CO2 3	3

[object HTMLDivElement]