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May 2024 (ENDSEM) EXAM

F.Y.B. TECH. (SEMESTER - II)

COURSE NAME: Programming And Problem Solving-II COURSE CODE: SE12233

Branch: CESE

(PATTERN 2023)

Time: [1Hr. 30 Min] **[Max. Marks: 40]**

() Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **Use of scientific calculator is allowed**
3) **Use suitable data wherever required**
4) **All questions are compulsory. Solve any one sub question from each Question 1 and 2 and any three sub questions each from Questions 3 and 4.**

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) Describe how Java language is platform independent.	[5]	CO1	Understand
	b) Describe the decision-making statements used in java with example.	[5]	CO1	Understand
Q2	a) Apply the following operations on this '**Good Morning Everyone**' strings in a Java program: • Calculate the length of the string. • Convert the string to uppercase. • Convert the string to lowercase. • Substitute every occurrence of 'o' with 'i'. • Identify the characters located at the 5th and 13th positions.	[5]	CO2	Apply
	b) Utilize a switch-case statement to Develop a Java program that analyzes a given character to determine if it falls into the category of vowels or consonants.	[5]	CO2	Apply
Q.3	a) Apply the concept of "this" keyword to distinguish between "local variable" and "instance variable" with example.	[5]	CO3	Apply
	b) Apply method overloading within a Java program to create a class featuring two 'mul' methods capable of performing multiplication operations on both integer and floating-point number parameters.	[5]	CO3	Apply

	c) Apply aggregation in a Java program by designing two classes: Employee and Bike. The Bike class includes bike_name and regno while Employee class manages details such as emp_name and emp_id, and maintains a reference to a Bike object. Instantiate objects to illustrate the relationship, and display the employee's name and ID, along with the bike's name and registration number.	[5]	CO3	Apply
	d) Apply the 'super' keyword in Java to access parent class members within a child class. Parent initializes 'a' as 20, child class extends it, setting 'a' to 30. Child's method 'show' prints both its 'a' and parent's 'a' using 'super'. Instantiate the child class, call its 'show' method to display both values.	[5]	CO3	Apply
Q.4	a) Apply the concept of abstraction in Java to design a virtual pet adoption center program. Create an abstract class named Pet with a method speak(). Implement subclasses like Dog, Cat, and Parrot, extending Pet, each providing their own implementation of the speak() method to represent their unique sounds.	[5]	CO4	Apply
	b) Apply the concept of interface in Java to design a music player application. Create an interface named PlayerControl with functions for basic playback operations like play() and pause(). Implement classes such as MP3Player and CDPlayer, both implementing the PlayerControl interface and offering their own implementations for the playback controls.	[5]	CO4	Apply
	c) Design a Java application for managing employee records. Define an Employee class with attributes such as name, age, and employee ID, along with methods to set and get these attributes. In the main method, instantiate an Employee object, set its attributes with sample data, and display the employee's details.	[5]	CO4	Apply
	d)) Illustrate the concept of Abstract Class and abstract method by using Suitable java program.	[5]	CO4	Apply