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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Third Semester B.Tech Degree Regular and Supplementary Examination December 2022 (2019 Scheme)

Course Code: CST205

Course Name: OBJECT ORIENTED PROGRAMMING USING JAVA

Max. Marks: 100   Duration: 3 Hours

PART A

Answer all questions. Each question carries 3 marks   Marks

1	How is platform independence achieved in Java?	(3)
2	Explain how garbage collection is done in Java.	(3)
3	Explain the use of static variable with the help of an example.	(3)
4	Can final modifier be used with an abstract class. Justify your answer.	(3)
5	Differentiate between the usage of keywords throw and throws.	(3)
6	Explain the significance of CLASSPATH environment variable in Java.	(3)
7	List any three event sources and their corresponding event types and listeners used.	(3)
8	Illustrate the creation of arraylist with the help of a sample program.	(3)
9	Compare Swing API and AWT API.	(3)
10	What are layout managers? List any twolayout managers.	(3)

PART B

Answer any one full question from each module. Each question carries 14 marks

Module 1

11 a) Consider the problem of a Service Station which provides three types of services to its customers: refuelling, vehicle maintenance and parking. Customer can pay using cash, card or cheque. The pricing for vehicle maintenance depends on the cost of parts and labour. Parking areas are rented according to weekly and monthly rates. Construct an UML class diagram for the above problem by identifyingatleast six entities in the system which can be represented using classes and show the relationship between them. **(10)**

b) Describe programming structure of Java that deals with the organization of Java code. **(4)**

12 a) Differentiate between the two main approaches of software design. **(7)**

	b	Construct a UML Activity diagram for an online Hotel Reservation System, which shows the flow of activities for booking rooms at a hotel.	(7)

Module 2

13	a	Write a Java program by creating a 'Student' class having the following data members: rollNumber, name, mathMarks, phyMarks, chemMarks and methods getRequiredDetails() – to get required input and displayAverage() – to calculate average marks and display it. In class 'Implement' create an object of the Student class and get the required details from user and display the average marks of that student.	(7)
	b	Write a java program that illustrates how 'this' keyword can be used to resolve the ambiguity between formal parameters and instance variables.	(7)
14	a	Explain the concept of method overloading with the help of a program.	(7)
	b	What is inheritance? Illustrate hierarchical inheritance using a sample program.	(7)

Module 3

15	a	Write a program to read the first n characters in a file where n is given by the user. The characters read from file has to be reversed and displayed on screen. Built in methods can be used in the program.	(7)
	b	Explain the role of access modifiers when packages are used in Java.	(7)
16	a	Create a user defined exception 'InvalidAgeException'. Write a Java program that takes age as a Command Line Argument. Raise the Exception 'InvalidAgeException' if age is less than 18.	(7)
	b	Explain the concept of Serialization and demonstrate how an object can be serialized with a sample program.	(7)

Module 4

17	a	Illustrate the event handling mechanism in Java using the Delegation Event Model with the help of a diagram.	(8)
	b	Illustrate the usage of the following methods related to String with appropriate sample code. (i) find() (ii)substring() (iii) replace()	(6)
18	a	What is multithreading? Write a multithreaded Java program that demonstrates the working of wait() and notify() methods.	(7)

b   Explain how ActionEvent class and FocusEvent class is used with emphasis   (7)
on the methods and constants provided by the given classes.

Module 5

19 a   Write a Java program that uses two textfields and a button. The first textfield   (9)
accepts temperature in Celsius. When the 'Convert' button is clicked the
second textfield displays the temperature in Fahrenheit. Use appropriate
Swing components and event handling techniques. F=(C*9/5)+32

    b   Describe the two different ways to create frames using Swing package with   (5)
appropriate examples.

20 a   Discuss the Model View Controller (MVC) Architecture using a diagram.   (7)
Also list out the advantages of writing programs based on MVC Architecture.

    b   Explain the various steps for connecting to database using JDBC API, using a   (7)
sample program.