CBCS SCHEME

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BCS306A

Third Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Object Oriented Programming with Java

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Discuss the different data types supported by Java along with the default values and literals.	8	L2	CO1
	b.	Develop a Java program to convert Celsius temperature to Fahrenheit.	6	L3	CO2
	c.	Justify the statement "Compile once and run anywhere" in Java.	6	L2	CO1
		OR			
Q.2	a.	List the various operators supported by Java. Illustrate the working of >> and >>> operators with an example.	8	L2	CO1
	b.	Develop a Java program to add two matrices using command line argument.	10	L3	CO2
	c.	Explain the syntax of declaration of 2D arrays in Java.	2	L2	CO1
		Module – 2			
Q.3	a.	Examine Java Garbage collection mechanism by classifying the 3 generations of Java heap.	6	L2	CO1
	b.	Develop a Java program to find area of rectangle, area of circle and area of triangle using method overloading concept. Call these methods from main method with suitable inputs.	10	L3	CO2
	c.	Interpret the general form of a class with example.	4	L2	CO2
		OR			
Q.4	a.	Outline the following keywords with an example : (i) this (ii) static	6	L2	CO2
	b.	Develop a Java program to create a class called 'Employee' which contains 'name', 'designation', 'empid' and 'basic salary' as instance variables and read ( ) and write ( ) as methods. Using this class, read and write five employee information from main ( ) method.	10	L3	CO2
	c.	Interpret with an example, types of constructions.	4	L2	CO2
		Module – 3			
Q.5	a.	Illustrate the usage of super keyword in Java with suitable example. Also explain the dynamic method dispatch.	10	L2	CO3
	b.	Build a Java program to create an interface Resizable with method resize (int radius) that allow an object to be resized. Create a class circle that implements resizable interface and implements the resize method.	10	L3	CO3
		OR			
Q.6	a.	Compare and contrast method overloading and method overriding with suitable example.	8	L2	CO2

	b.	Define inheritance and list the different types of inheritance in Java.	4	L2	CO3
	c.	Build a Java program to create a class named 'Shape'. Create 3 sub classes namely circle, triangle and square ; each class has 2 methods named draw ( ) and erase ( ). Demonstrate polymorphism concepts by developing suitable methods and main program.	8	L3	CO3
		Module – 4			
Q.7	a.	Examine the various levels of access protections available for packages and their implications with suitable examples.	10	L2	CO4
	b.	Build a Java program for a banking application to throw an exception, where a person tries to withdraw the amount even though he/she has lesser than minimum balance (Create a custom exception)	10	L3	CO4
		OR			
Q.8	a.	Define Exception. Explain Exception handling mechanism provided in Java along with syntax and example.	10	L2	CO4
	b.	Build a Java program to create a package "balance" containing Account Class with displayBalance ( ) method and import this package in another program to access method of Account Class.	10	L3	CO4
		Module – 5			
Q.9	a.	Define a thread. Also discuss the different ways of creating a thread.	6	L2	CO5
	b.	How synchronization can be achieved between threads in Java? Explain with an example.	6	L2	CO5
	c.	Develop a Java program for automatic conversion of wrapper class type into corresponding primitive type that demonstrates unboxing.	8	L3	CO5
		OR			
Q.10	a.	Summarize the type wrappers supported in Java.	6	L2	CO5
	b.	Explain Autoboxing/Unboxing that occurs in expressions and operators.	6	L2	CO5
	c.	Develop a Java program to create a class myThread. Call the base class constructor in this class's constructor using super and start the thread. The run method of the class starts after this. It can be observed that both main thread and created child thread are executed concurrently.	8	L3	CO5

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