CS115BIC / CS125BIC / 22PL25C

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RV COLLEGE OF ENGINEERING®

(An Autonomous Institution Affiliated to VTU)

I/II Semester B. E. Regular / Supplementary Examinations Aug-2024

BASICS OF JAVA PROGRAMMING

Time: 03 Hours ***Maximum Marks: 100***

Instructions to candidates:

1. Answer all questions from Part A. Part A questions should be answered in first three pages of the answer book only.
2. Answer FIVE full questions from Part B. In Part B question number 2 & 11 are compulsory. Answer any one full question from 3 and 4, 5 and 6, 7 and 8, 9 and 10, and 11 lab components (compulsory).

PART-A

			M	BT	CO
1	1.1	List the four integer types in Java.	01	1	1

	1.2	Mention the output of the following:
		class OpEquals
		{
		public static void main(*string* ***avgs*** [ ])
		{
		int a = 1;
		int b = 2;
		int c = 3;
		a+= 5;
		*b *= 4;*
		*c+= a * b;*
		c% = 6;
		system.out.println("a = " + a);
		system.out.println("b = " + b);
		system.out.println("c = " + c);
		}
		}
			02	2	1

	1.3	Write the output of the following Java code:
		class comma
		{
		public static void main(*string* ***avgs*** [ ])
		{
		int a, b;
		for(a = 1, b = 4; a < b; a++, b--)
		{
		system.out.println("a = " + a);
		system.out.println("b = " + b);
		}
		}
		}
			02	2	2

	1.4	Write the general form of a Java method.	01	1	2
	1.5	Define method overriding.	01	1	3
	1.6	_____ are designed to support dynamic method resolution at run time.	01	1	3
	1.7	Distinguish between process-based and thread-based multitasking environments.	02	2	3

PART-B

2	a	List and explain the main features of object-oriented programming.	07	1	1
	b	Briefly explain the following terms in Java: i) Bitwise operators ii) The For-each version of the for loop iii) Jump statements	07	1	1
3	a	Define constructor. Why constructors are used in Java? Give a suitable real time example using constructors.	06	1	2
	b	Create a class called student with the data members for storing student's register number, name, year and methods for accessing them. Write a driver class with main() method which creates objects of student class and takes user inputs. The program should display the contents of the objects using public method called display() defined in student class.	08	2	21
		OR			
4	a	Given that an employee class contains following members: Employee number, Employee name, Basic DA, IT and Net Salary. Design a Java Program to read the data of N employee and compute Net Salary of an employee (DA= 42% of Basic and Income Tax (IT) = 20% of the gross salary, where gross salary = Basic + DA, Net Salary = gross salary-IT).	08	2	2
	b	Describe the method overloading concept in Java with suitable example program.	06	2	2
5	a	Design a Java Program to: i) Create a super class called Animal with three methods eat(), bark() and weep(). ii) Create a Sub classes like Dog and Baby dog, and illustrate how multilevel inheritance works.	07	3	2
	b	Compare and contrast method overloading and method overriding.	07	2	2
		OR			
6	a	Discuss the usage of final with Inheritance in Java using suitable code snippets.	06	2	3
	b	Design a Java program to create an abstract class called SHAPE to represent any shape in general. Create three derived classes – CIRCLE, RECTANGLE, and SQUARE by inheriting the features of class SHAPE. Implement the methods to read and compute the area. Add method to display the results as required. Assume appropriate attributes.	08	3	4
7	a	What is meant by package? Create a user defined package to find all roots of quadratic equation. Write a Java Program to use this package.	10	2	3
	b	Briefly explain Exception handling mechanism in Java.	04	2	3
		OR			
8	a	With syntax, explain the purpose of interfaces in Java. Illustrate with suitable example.	07	2	3
	b	Why exception handling is required? Implement a stack class and raise user defined exceptions for stack underflow and stack overflow operations.	07	3	4

9	a	Describe thread life cycle with a neat diagram.	07	2	3
	b	Design a Java program that creates two threads object or thread class, where one thread asks the user to enter address along with pin code. Second thread to check pin code is not less than 6 digits and displays the same.	07	3	3
		OR			
10	a	What are Thread Priorities? Demonstrate setPriority() and getPriority() with an example.	07	2	3
	b	Create two threads "FirstThread" and "SecondThread". Both of these threads will display numbers 1,2,3,....10. With a one second delay in displaying the next number. Thread Demo class will be starting these threads "FirstThread" and "SecondThread".	07	3	3
		LAB COMPONENT			
11	a	Create a class called Account. Write a Java Program to deposit and withdraw money in a bank account. The program should display the balance after each operation. Maintain Rs. 1000 as minimum balance. Assume appropriate attributes and use constructors.	10	2	4
	b	Write a Java Program to compute factorial of a given number. Apply a custom exception handling mechanism when a user entered number is a "negative number". Use appropriate classes, methods and handle the exception.	10	3	4