



BMS COLLEGE OF ENGINEERING, BANGALORE-19

(Autonomous Institute, Affiliated to VTU)

Department of Computer Science and Engineering

**INTERNALS-1**

Course Code : 21CS3PCOOJ

Course Title : Object Oriented Java Programming

Semester : III

Maximum Marks: 40

Date: 23/12/2022

Faculty Handling the Course:

Dr. Nandhini Vineeth, Prof. Vikranth B M, Prof. Syed Akram

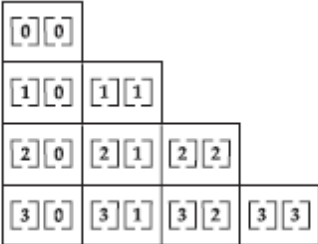
Instructions: No choice in Part A and Part B. *Internal choice is provided in Part C.*

**PART-A**

No.	Question	Marks
1.	Demonstrate the three uses of final keyword with an example program.	5

**PART-B**

No.	Question	Marks
2.a.	<p><b>Identify the errors encountered in the given program. Correct the errors and display the result. Note: without commenting/removing any line of code</b></p> <pre>class A{     int value=100;     byte b=50;     void display(){         b=b*2;         System.out.println("Class A method:b="+b);     } } class B {     int value=200;     void display() { System.out.println("Class B method"); }     void printMsg(){ display(); super.display(); }     public static void main(String args[]){         A obj= new B();         obj.display();         System.out.println(obj.value);         obj.printMsg();     } }</pre>	5
2.b.	<p><b>Analyze the given program and write the expected output.</b></p> <pre>class UseStatic {     static int a = 3;     static int b;     UseStatic() { a++; b=20; b++; }     static void meth(int x) {         a++; b=a+10;         System.out.println("a = " + a); System.out.println("b = " + b); } } class Staticdemo{     public static void main(String args[]) {         UseStatic u1 = new UseStatic();         System.out.println(u1.a);         System.out.println(u1.b);         UseStatic.meth(100);         UseStatic u2 = new UseStatic();         System.out.println(u2.a);         System.out.println(u2.b);     } }</pre>	5

<b>2.c.</b>	<p>Complete the code snippet to create a 2d array in the format given here.</p> <pre> class TwoDA {     public static void main(String args[])     {         int twoD[][] = .....         .....         .....         .....     } } </pre> 	
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### PART- C

No.	Question	Marks
<b>3.a.</b>	<p>Create a class Length with instance members mm and cm. Include the following methods</p> <ol style="list-style-type: none"> <li>a default constructor</li> <li>a parameterized constructor</li> <li>accept the values from the user</li> <li>add the given two lengths considering the fact that 1cm = 10mm and return back the resultant Length object.</li> </ol>	<b>10</b>
<b>OR</b>		
<b>3.b.</b>	<p>Create a class Book with instance members bookid, bookname, author, no_pages and price. Write a Java program to create an array of n Book objects. Include methods that display the following according to requirement.</p> <ol style="list-style-type: none"> <li>Name and Id of the Book which is most expensive</li> <li>Details of all the books which are written by the same author.</li> </ol>	<b>10</b>
<b>4.a.</b>	<p>Create a class Student with members- usn, name, age, dept and sem. Include methods to set and print the values. Derive two subclasses- PG_student with member intern_companynname and ResearchScholar with member no_publications. Create n objects for each of the classes. Include methods to do the following</p> <ol style="list-style-type: none"> <li>Print the name of the PG_students who have internship in a company of user's choice</li> <li>Print the details of scholars who have 0 publications.</li> </ol>	<b>10</b>
<b>OR</b>		
<b>4.b.</b>	<p>Create an abstract class <b>Calculate</b> which has three double members -say <b>x</b>, <b>y</b> and <b>result</b>. Include a method <b>calc</b>. Derive three classes from <b>Calculate</b> which performs any three arithmetic operations on the two variables <b>x</b> and <b>y</b> and assign the result to the variable <b>result</b>. Make appropriate declarations and definitions.</p>	<b>10</b>