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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

August 2023 Semester End Make-Up Examinations

Programme: B.E. **Semester: III**
Branch: Computer Science and Engineering **Duration: 3 hrs.**
Course Code: 22CS3PCOOJ **Max Marks: 100**
Course: Object Oriented Java Programming **Date: 11.08.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

UNIT - I

1 a) Discuss about method overloading. Demonstrate with an example program. **6**

b) Analyze the given output. Complete the program considering that inputs are given using command line arguments. **6**

```
class cmdLineDemo
{
public static void main(String s[])
  {
        char sec;
        String name1=new String();
        int sem;
        double total,cie,see;
        name1=s[0];
        sem=……
        sec= ……..
        cie= ……
        see= ……
        total=cie+see;
        System.out.println(……);
        }
}
```

Expected Output:
John studying in 3rd semester A section has secured a CIE Marks of 40.5 and SEE Marks of 39.5. So the total marks secured is 80

c) Create a class Age with instance variables years and months. Include appropriate constructors and methods in class Age to add given two ages considering the fact that 12 months = 1 year and return back the resultant Age object. Create two objects of the Age class. Add the two objects. **8**

UNIT - II

2 a) Explain dynamic method dispatch with an example program. **6**

b) Analyze the given erroneous program. Write the corrected program with the modified statements underlined. Include comments to explain the modifications if required. **6**

```
class level0
{
 int a;
 level0(int x)  {a=x;}
 final void putd( )  { System.out.println(a);}
}

final class level1 extends level0
{
 int b;
 level1(int x, int y)  {super(x); b=y;}
 void putd( )  {System.out.println(a+" "+b);}
}

class level2 extends level1
{  }
class FinalDemo
{
 public static void main(String s[])
 { final int xxx=100;
 System.out.println(xxx);
  xxx++;
  level0 a1= new level0(1);
  level1 b1=new level1(2,3);
  a1.putd( );
  b1.putd( );
  b1.putd1();
  level2 l=new level2();
 }}
```

c) Write a program to design a class called Employee with data variables Emp_ID, Emp_Name and Salary and an abstract method Cal_Salary of the Employee. Derive two classes Permanent_Emp and Temporary_Emp from Employee class which overrides Cal_Salary( ) method accordingly. **8**

UNIT - III

3 a) Demonstrate the usage of finally keyword with an example program. **6**

b) Complete the given program. Let the class Car make use of the interface Vehicle. **6**

```
interface Vehicle {
   public String licensePlate = "";
   public float maxVel()=100;
   public void start();
   public void stop();
   default void blowHorn(){
     System.out.println("Blowing horn");
  }
}
class Car
{  ….. }
```

```
class Vehimain
{
  public static void main(String ss[])
   { ..... }
}
```

c) Create a user defined exception named Reorder. Create a class called Item with members- Id, name, price, quantity, minimum_required_quantity(in stock). Include methods **8**

i) purchase which adds items to the existing quantity

ii) sell which reduces the same.

Create two objects of Item and set the values given by the user. Raise the exception Reorder when the quantity of any item goes below minimum_required_quantity.

OR

4 a) Demonstrate the usage of interface using a stack implementation. **6**

b) Analyze the given Java program named MultipleCatches.java and discuss regarding any two possible inputs and corresponding outputs. Show the two statements printed after the execution of the program. **6**

```
class MultipleCatches {
public static void main(String args[]) {
try {
int a = args.length;
System.out.println("a = " + a);
int b = 42 / a;
int c[] = { 1 };
c[42] = 99;
} catch(ArithmeticException e) {
System.out.println("Divide by 0: " + e);
} catch(ArrayIndexOutOfBoundsException e) {
System.out.println("Array index oob: " + e);
}
System.out.println("After try/catch blocks.");
}
}
```

c) Create a class Product with members- Product_ID, Product_Name and Amount. Include methods Dispatch() that displays message dispatched and Cal_Amount(int amt) which adds amt to Amount. Design a user defined exception Amount Exceeded to handle the situation of calculated amount exceeding 50000. Write ProductDemo class to test the classes. **8**

UNIT - IV

5 a) Discuss the functionalities and syntax of isAlive() and join() methods. **6**

b) Analyze the given program to find the errors. Write the corrected program and underline the places where there are errors. **6**

```
class CurrentThreadDemo {
 public static void main (String args[]) {
 CurrentThreadDemo t = Thread.currentThreadName( );
 System.out.println("Current thread: " + t);
 t.setname("My Thread");
 System.out.println("After name change: " + t);
 try
 {
   for (int n = 5; n > 0; n--)
   { System.out.println(n); Thread.Sleep(1000); }
  } catch (ArithmeticException e)|
   {  System.out.println("Main thread interrupted"); }
 }
}
```

c) Write a Java program to create a thread and find the sum of odd numbers from 1 to 100 and print the sum in this thread. Find the sum of even numbers for the same range and print in the main thread. **8**

UNIT - V

6 a) Write the syntax of fillOval, drawPolygon, and drawLine with example statements. **6**

b) Analyze the code snippet given here. Identify the Listener required for the given methods. Discuss about the Graphics and drawString keywords used here. **6**

```
public void mouseDragged (MouseEvent me) {
 mouseX = me.getX();
 mouseY = me.getY();
 msg = "*"+"  mouse at " + mouseX + ", " + mouseY;
 repaint();
 }
public void mouseMoved (MouseEvent me) {
 // show status
 msg ="Moving mouse at " + me.getX() + ", " + me.getY();
 repaint();
 }
 // Display msg in applet window at current X,Y location.
 public void paint(Graphics g) {
 g.drawString(msg, mouseX, mouseY);
 }
```

c) Develop a Java program to create a figure using graphics. Resize the same on every mouse click. **8**

OR

7 a) Explain about Delegation Event Model. **6**

b) Analyze the following statements, draw appropriate graphics with given dimensions and discuss on the parameters. **6**

```
g.fillRect(100, 150, 60, 50);
g.drawRoundRect(190, 150, 60, 50, 15, 15);
g.drawArc(10, 350, 70, 70, 0, 180);
```

c) Develop a Java program that implements any two methods associated with MouseListener and any two methods associated with MouseMotionListener. **8**

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