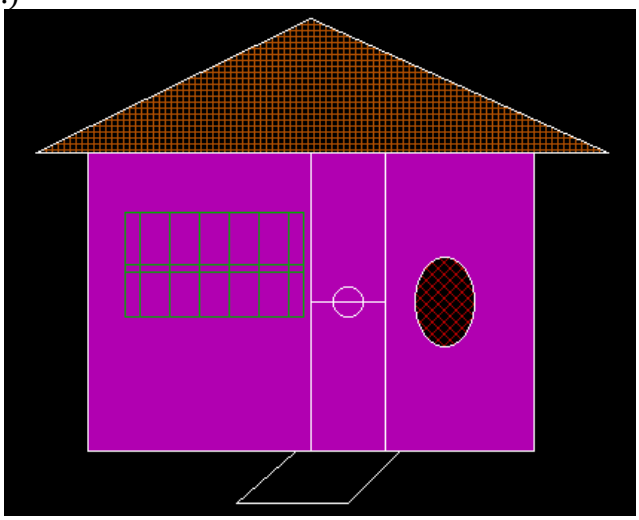
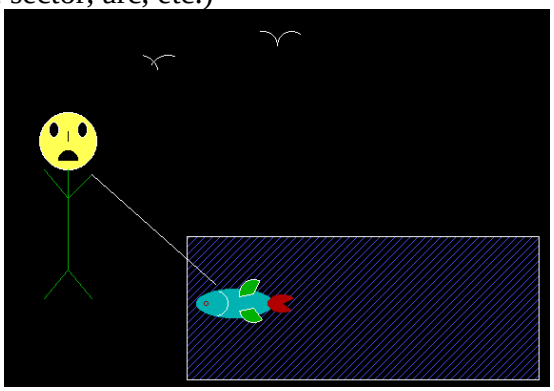
| Practical VII | BCAP 286<br>Computer Graphics<br>and Animation Lab | 48 Hours |
|---|---|---|
| Practical/Week: 4 Hours | | I.A.: 20 |
| Credits: 2 | | Exam: 80 |

## PART- A

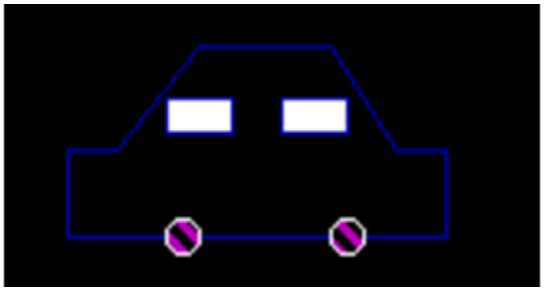
1. Design the following using library functions (line, fillellipse, sefillstyle, floodfill, circle, rectangle, fillpoly, etc.)

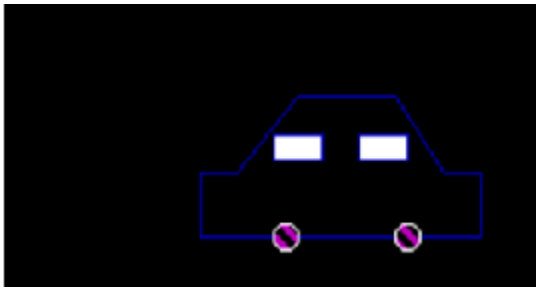


2. Design the following using library functions (line, fillellipse, sefillstyle, floodfill, circle, rectangle, fillpoly, pieslice, sector, arc, etc.)

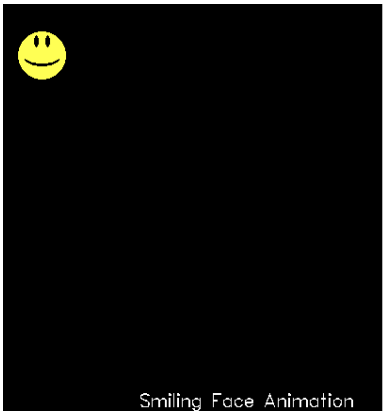


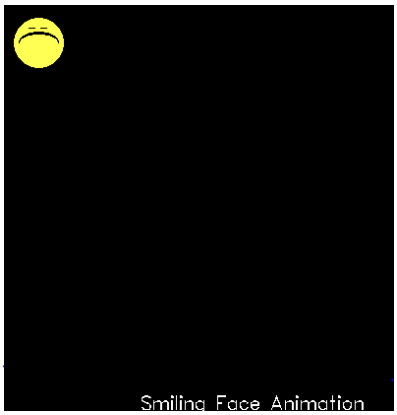
3. Program to implement moving car (design car using drawpoly, setfillstyle, floodfill, circle, line, etc.).





4. Program to implement face animation with blinking eyes (circle, floodfill, fillellipse, line, etc.).




5. Program to implement digital clock to display current time (hh:mm:ss) with ticking sound.



## PART- B

1. Program to implement DDA Line generation algorithm for all 4 quadrants of a plane (x and y axis should meet at centre(320,240) i.e., Origin O(0,0) of user coordinate system).
2. Program to draw a line using Bresenham's line generation algorithm with slope m such that 0<m<1.
3. Program to implement midpoint circle generation algorithm.
4. Program to transform object ( Tringle or rectangle or Polygon) from window to view port.
5. Program to draw a thick circle using moving pen method at a given centre.

## PART- C

1. Program to draw a polygon by accepting vertex coordinates and fill it using Boundary fill or Flood fill based on user's choice.
2. Program to draw a polygon by accepting vertex coordinates and perform basic transformations (translation, scaling, rotation) about a given point based on user's choice.
3. Program to draw a polygon by accepting vertex coordinates and perform shear and reflections about x and y axes based on user's choice.
4. Program to implement Cohen-Sutherland Line clipping algorithm.
5. Program to draw an ellipse using midpoint algorithm.

## Scheme of Examination

| S. No. | Details | | | Marks | Total |
|---|---|---|---|---|---|
| 1 | PART A | i. | Problem solving and coding | 8 | **18** |
| | | ii. | Compiling the code and debugging | 6 | |
| | | iii | Execution and testing | 4 | |
| 2 | PART B | i. | Problem solving and coding | 10 | **22** |
| | | ii. | Compiling the code and debugging | 7 | |
| | | iii | Execution and testing | 5 | |
| 3 | PART C | i. | Problem solving and coding | 11 | **25** |
| | | ii. | Compiling the code and debugging | 8 | |
| | | iii. | Execution and testing | 6 | |
| **4** | **Class Records** | | | | **10** |
| **5** | **Viva – Voce** | | | | **5** |
| **Total Marks** | | | | | **80** |

| Practical VIII | BCAP 287<br>Java Lab | 48 Hours |
|---|---|---|
| Practical/Week: 4 Hours | | I.A.: 20 |
| Credits: 2 | | Exam: 80 |

## PART – A

1. A cloth showroom has announced the following seasonal discounts on purchase of items:

| Purchase Value | Discount amount (%) | |
|---|---|---|
| | Mill cloth | Handloom items |
| 0 - 250 | - | 5 |
| 251 - 500 | 5 | 7.5 |
| 501 - 750 | 7.5 | 10 |
| Above 750 | 10 | 15 |

   Write a program using switch and if statements to compute the net amount to be paid by customer. [if and switch]

2. Write a program that uses both recursive and non-recursive functions to print the Fibonacci sequence. [functions and recursive functions]

3. Write a program that accepts series of integers as command line argument, arrange them using bubble sort method and display. [command line argument and arrays]

4. Define a class named Pay with data members String name, double salary, double da, double hra, double pf, double grossSal, double netSal and methods: Pay(String n, double s) - Parameterized constructor to initialize the data members, void calculate() - to calculate the following salary components, and void display() - to display the employee name, salary and all salary components.
   Dearness Allowance = 15% of salary
   House Rent Allowance = 10% of salary
   Provident Fund = 12% of salary
   Gross Salary = Salary + Dearness Allowance + House Rent Allowance
   Net Salary = Gross Salary - Provident Fund
   Write a main method to create object of the class and call the methods to compute and display the salay details. [class basics]

5. Define a class called Time with data members Hours, Minutes and Seconds. Read two time values and find difference between them. Use constructors to initialize data members. [constructor overloading]

## PART-B

1. Create a class named 'Member' having data members: *Name, Age, PhoneNumber, Place and Salary*. It also has a method named 'printSalary' which prints the salary of the members. Two classes 'Employee' and 'Manager' inherit the 'Member' class. The 'Employee' and 'Manager' classes have data members 'specialization' and 'department' respectively. Now, assign name, age, phone number, address and salary to an employee and a manager by making an object of both of these classes and print the same. [inheritance]

2. Write a program to create an abstract class named shape that contains two integers and an empty method named print Area(). Provide three classes named Rectangle, Triangle and Ellipse such that each one of the classes extends the class shape. Each one of the class contains only the method print Area() that print the area of the given shape. [Abstract class]

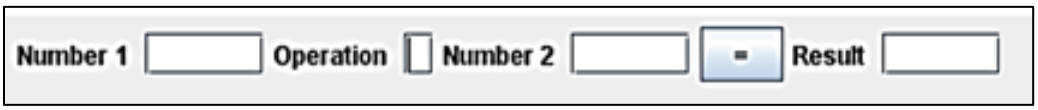
3. Write a program to calculate marks of a student using multiple inheritance implemented through interface. Class **Student** with data members rollNo, name, String **cls** and methods to set and put data. Create another class **test** extended by class Student with data members mark, mark2, mark3 and methods to set and put data. Create interface sports with members sportsWt = 5 and putWt(). Now let the class results extends class test and implements interface sports. Write a Java program to read required data and display details in a neat format. [multiple inheritance using interface]

4. Create a user defined package name MyPack. Add a public class **Bank** with account number, name and balance as data members and methods to initialize data, deposit amount, withdraw amount (minimum balance 1000) and display balance. Use this package in another class and perform basic banking operations. [User defined package]

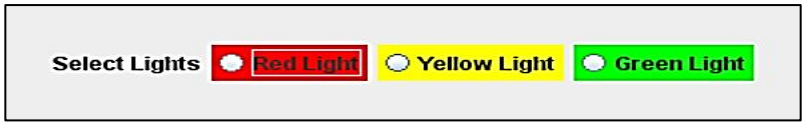
5. Write a program that implements a multi-threaded program has three threads. First thread generates a random integer every second, and if the value is even, second thread computes the square of the number and prints. If the value is odd the third thread will print the value of cube of the number. [Multithreading]

## PART-C

1. Write a program that creates a user interface to perform basic integer operations. The user enters two numbers in the textfields, Num1 and Num2. The result of operations must be displayed in the Result textfield when the "=" button is clicked. If Num1 or Num2 is not an integer, the program should throw NumberFormatException. If Num2 is Zero, the program should throw an ArithmeticException when division operation is applied. Display the exception in a message dialog box. [Swing]



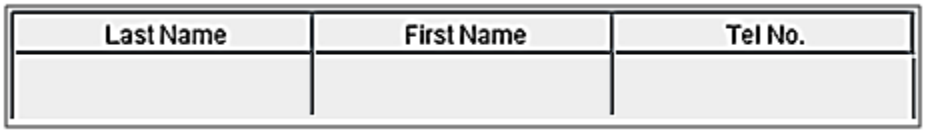
2. Write a program to simulate a Traffic Light. The program lets the user select one of three lights: red, yellow or Green with radio buttons. On selecting radio button, an appropriate message with "Stop" or "Ready" or "Go" should appear above the button in selected color. Initially, there is no message shown. [Swing]




3. Write a menu driven JDBC program to perform basic operations with Student Table. Operations to performed are insert student details, delete a specific student details and search for a student's details. [JDBC]

4. Write a program to design a registration form for creating a new eMail account. [Swing &JDBC]


5. Write a program to retrieve data from telephone table (fname, lastname, telNo) and display them in a JTable component. [Swing & JDBC]




## Scheme of Examination

| Sl. No. | Details | | | Marks | Total |
|---|---|---|---|---|---|
| 1 | PART A | i. | Problem solving and coding | 8 | **18** |
| | | ii. | Compiling the code and debugging | 6 | |
| | | iii | Execution and testing | 4 | |
| 2 | PART B | i. | Problem solving and coding | 10 | **22** |
| | | ii. | Compiling the code and debugging | 7 | |
| | | iii | Execution and testing | 5 | |
| 3 | PART C | i. | Problem solving and coding | 11 | **25** |
| | | ii. | Compiling the code and debugging | 8 | |
| | | iii. | Execution and testing | 6 | |
| **4** | **Class Records** | | | | **10** |
| **5** | **Viva – Voce** | | | | **5** |
| **Total Marks** | | | | | **80** |