Duration: 3 Hours   Maximum Marks: 35

Q1) Write a Program to print all Prime numbers in an array of 'n' elements.
(use command line arguments)

[10 marks]

Q2) Define an abstract class Staff with protected members id and name. Define a parameterized
constructor. Define one subclass OfficeStaff with member department. Create n objects of
OfficeStaff and display all details.

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Write a program to read the First Name and Last Name of a person, his weight and height using command line arguments. Calculate the BMI Index which is defined as the individual's body mass divided by the square of their height.
(Hint : BMI = Wts. In kgs / (ht)^2)

[10 marks]

Q2) Define a class CricketPlayer (name,no_of_innings,no_of_times_notout, totatruns, bat_avg). Create an array of n player objects .Calculate the batting average for each player using static method avg(). Define a static sort method which sorts the array on the basis of average. Display the player details in sorted order.

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Write a program to accept 'n' name of cities from the user and sort them in ascending
order.

[10 marks]

Q2) Define a class patient (patient_name, patient_age, patient_oxy_level,patient_HRCT_report).
Create an object of patient. Handle appropriate exception while patient oxygen level less than
95% and HRCT scan report greater than 10, then throw user defined Exception "Patient is Covid
Positive(+) and Need to Hospitalized" otherwise display its information.

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Write a program for multilevel inheritance such that Country is inherited from Continent.
State is inherited from Country. Display the place, State, Country and Continent.

[10 marks]

Q2) Write a menu driven program to perform the following operations on multidimensional array
ie matrices :
- Addition
- Multiplication
- Exit

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Write a program to display the Employee(Empid, Empname, Empdesignation, Empsal) information using toString().

[10 marks]

Q2) Create an abstract class "order" having members id, description. Create two subclasses "PurchaseOrder" and "Sales Order" having members customer name and Vendor name respectively. Definemethods accept and display in all cases. Create 3 objects each of Purchase Order and Sales Order and accept and display details.

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Design a class for Bank. Bank Class should support following operations;
  a. Deposit a certain amount into an account
  b. Withdraw a certain amount from an account
  c. Return a Balance value specifying the amount with details

[10 marks]

Q2) Write a program to accept a text file from user and display the contents of a file in reverse order and change its case.

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Create a class Sphere, to calculate the volume and surface area of sphere.
   (Hint : Surface area=4*3.14(r*r), Volume=(4/3)3.14(r*r*r))

[10 marks]

Q2) Design a screen to handle the Mouse Events such as MOUSE_MOVED
   and MOUSE_CLICKED and display the position of the Mouse_Click in a TextField.

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Write a program to find the cube of given number using functional interface.

[10 marks]

Q2) Write a program to create a package name student. Define class StudentInfo with method to display information about student such as rollno, class, and percentage. Create another class StudentPer with method to find percentage of the student. Accept student details like rollno, name, class and marks of 6 subject from user.

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Define an interface "Operation" which has method volume( ).Define a constant PI having a value 3.142 Create a class cylinder which implements this interface (members – radius,height). Create one object and calculate the volume.

[10 marks]

Q2) Write a program to accept the username and password from user if username and password are not same then raise "Invalid Password" with appropriate msg.

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Write a program to create parent class College(cno, cname, caddr) and derived class Department(dno, dname) from College. Write a necessary methods to display College details.

[10 marks]

Q2) Write a java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -, *, % operations. Add a text field to display the result.

```
Simple Calculator

[                    ]

  1    2    3    +
  4    5    6    -
  7    8    9    *
  0    .    =    /
```

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Write a program to accept a file name from command prompt, if the file exits then display number of words and lines in that file.

[10 marks]

Q2) Write a program to display the system date and time in various formats shown below:
                Current date is : 31/08/2021
                Current date is : 08-31-2021
                Current date is : Tuesday August 31 2021
                Current date and time is : Fri August 31 15:25:59 IST 2021
                Current date and time is : 31/08/21 15:25:59 PM +0530

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Write a program to accept a number from the user, if number is zero then throw user defined exception "Number is 0" otherwise check whether no is prime or not (Use static keyword).

[10 marks]

Q2) Write a Java program to create a Package "SY" which has a class SYMarks (members – ComputerTotal, MathsTotal, and ElectronicsTotal). Create another package TY which has a class TYMarks (members – Theory, Practicals). Create 'n' objects of Student class (having rollNumber, name, SYMarks and TYMarks). Add the marks of SY and TY computer subjects and calculate the Grade ('A' for >= 70, 'B' for >= 60 'C' for >= 50, Pass Class for > =40 else'FAIL') and display the result of the student in proper format.

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Write a program to implement Border Layout Manager.

[10 marks]

Q2) Define a class CricketPlayer (name,no_of_innings,no_of_times_notout, totatruns, bat_avg).
Create an array of n player objects. Calculate the batting average for each player using static
method avg(). Define a static sort method which sorts the array on the basis of average.
Display the player details in sorted order.

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Write a Program to illustrate multilevel Inheritance such that country is inherited from continent. State is inherited from country. Display the place, state, country and continent.

[10 marks]

Q2) Write a package for Operation, which has two classes, Addition and Maximum. Addition has two methods add () and subtract (), which are used to add two integers and subtract two, float values respectively. Maximum has a method max () to display the maximum of two integers

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Define a class MyDate(Day, Month, year) with methods to accept and display a MyDateobject. Accept date as dd,mm,yyyy. Throw user defined exception "InvalidDateException" if the date is invalid.

[10 marks]

Q2) Create an employee class(id,name,deptname,salary). Define a default and parameterized constructor. Use 'this' keyword to initialize instance variables. Keep a count of objects created. Create objects using parameterized constructor and display the object count after each object is created. (Use static member and method). Also display the contents of each object.

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Create a class Student(rollno, name ,class, per), to read student information from the console
and display them (Using BufferedReader class)

[10 marks]

Q2) Create the following GUI screen using appropriate layout manager. Accept the name, class,
hobbies from the user and display the selected options in a textbox.

```
Your Name        j  TextField

Your Class            Your Hobbies

0    FY              ☐  Music
0    SY              ☐  Dance
0    TY              ☐  Sports

Name----, Class----, Hobbies------
```

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Define a Item class (item_number, item_name, item_price). Define a default and parameterized constructor. Keep a count of objects created. Create objects using parameterized constructor and display the object count after each object is created.(Use static member and method). Also display the contents of each object.

[10 marks]

Q2) Define a class 'Donor' to store the below mentioned details of a blood donor. name, age, address, contactnumber, bloodgroup, date of last donation. Create 'n' objects of this class for all the regular donors at Pune. Write these objects to a file. Read these objects from the file and display only those donors' details whose blood group is 'A+ve' and had not donated for the recent six months.

[20 marks]

Q3) Viva   [05 marks]

Duration: 3 Hours   Maximum Marks: 35

Q1) Write a program to create a class Customer(custno,custname,contactnumber,custaddr). Write a method to search the customer name with given contact number and display the details.

[10 marks]

Q2) Write a program to create a super class Vehicle having members Company and price. Derive two different classes LightMotorVehicle(mileage) and HeavyMotorVehicle (capacity_in_tons). Accept the information for "n" vehicles and display the information in appropriate form. While taking data, ask user about the type of vehicle first.

[20 marks]

Q3) Viva   [05 marks]