

SET 1

1. Write about the role of JVM, JAVA API in developing the platform independent java program with suitable example.

2. With an example program explain the concept of classes and nested classes in java.

3. Design a class RailwayTicket with the following description:

Instance variables/data members:

String name: to store the name of the customer.

String coach: to store the type of coach customer wants to travel.

long mobno: to store customer's mobile number.

int amt: to store basic amount of ticket.

int totalamt: to store the amount to be paid after updating the original amount.

Methods:

void accept(): to take input for name, coach, mobile number and amount.

void update(): to update the amount as per the coach selected. Extra amount to be added in the amount as follows:

Type of coaches Amount

First_AC 700

Second_AC 500

Third_AC 250

sleeper None

void display(): To display all details of a customer such as name, coach, total amount and mobile number.

Write a main() method to create an object of the class and call the above methods.

4. Design a class to overload a function volume() as follows:

(i) double volume(double r) – with radius 'r' as an argument, returns the volume of sphere using the formula:

$$v = \frac{4}{3} \times \frac{22}{7} \times r^3$$

(ii) double volume(double h, double r) – with height 'h' and radius 'r' as the arguments, returns the volume of a cylinder using the formula:

$$v = \frac{22}{7} \times r^2 \times h$$

(iii) double volume(double l, double b, double h) – with length 'l', breadth 'b' and height 'h' as the arguments, returns the volume of a cuboid using the formula:

$$v = l \times b \times h$$

SET 2

1. How to implement precedence rules and associativity in java language? Give an example.

2. Design a class that represents a bank account and construct the methods to

i) Assign initial values

ii) Deposit an amount

iii) Withdraw amount after checking balance

iv) Display the name and balance. Do you need to use static keyword for the above bank account program? Explain.

3. Define a class Electric Bill with the following specifications: [15]

class: ElectricBill

Instance Variable/ data member:

String n – to store the name of the customer

int units – to store the number of units consumed

double bill – to store the amount to paid

Member methods:

Void accept() – to accept the name of the customer and number of units consumed

Void calculate() – to calculate the bill as per the following tariff :

Number of units — Rate per unit

First 100 units — Rs.2.00

Next 200 units — Rs.3.00

Above 300 units — Rs.5.00

A surcharge of 2.5% charged if the number of units consumed is above 300 units.

Void print() – To print the details as follows :

Name of the customer

Number of units consumed

Bill amount

Write a main method to create an object of the class and call the above member methods.

4. Design a class to overload a function check() as follows:

i) void check(String str, char ch) – to find and print the frequency of a character in a string.

Example :

Input — Output

Str = “success” number of s present is=3

ch = ‘s’

ii) void check (String s1) – to display only the vowels from string s1 , after converting it to lower case.

Example :

Input:

S1= “computer” output: o u e

Set 3

1. What is data abstraction? Differentiate data and procedural abstractions. Write inheritance hierarchy for the super class Quadrilateral, Parallelogram, Square and Rectangle. Calculate area of square, rectangle and parallelogram.

2. What is the importance of constructor? Write a java program to perform constructor overloading. Describe the usage of static members and nesting members with suitable example programs in java.

3. Define a class named BookFair with the following description:

Instance variables/Data members:

String Bname – stores the name of the book.

double price – stores the price of the book.

Member Methods:

(i) BookFair() – Default constructor to initialize data members.

(ii) void Input() – To input and store the name and the price of the book.

(iii) void calculate() – To calculate the price after discount. Discount is calculated based on the following criteria.

Price	Discount
Less than or equal to Rs 1000	2% of price
More than Rs 1000 and less than or equal to Rs 3000	10% of price
More than Rs 3000	15% of price
(iv) void display() – To display the name and price of the book after discount.	

Write a main method to create an object of the class and call the above member methods.

4. Special words are those words which starts and ends with the same letter.

Examples:

EXISTENCE

COMIC

WINDOW

Palindrome words are those words which read the same from left to right and vice-versa.

Example:

MALAYALAM

MADAM

LEVEL

ROTATOR

CIVIC

All palindromes are special words, but all special words are not palindromes.

Write a program to accept a word check and print whether the word is a palindrome or only special word

Set 4

1. What are the components of JAVA platform? Explain. Write a java program to illustrate the usage of conditional statements and looping statements.

2. Write any six significant differences between Procedure Oriented Programming and Object Oriented Programming. Why JAVA is Robust programming language? Explain

3. Define a class ParkingLot with the following description:

Instance variables/data members:

int vno – To store the vehicle number

int hours – To store the number of hours the vehicle is parked in the parking lot

double bill – To store the bill amount

Member methods:

void input() – To input and store vno and hours

void calculate() – To compute the parking charge at the rate of Rs.3 for the first hour or part thereof, and Rs.1.50 for each additional hour or part thereof.

void display() – To display the detail

Write a main method to create an object of the class and call the above methods

4. Design a class to overload a function Joysting() as follows:

(i) void Joysting(String s, char ch1, char ch2) with one string and two character arguments that replaces the character argument ch1 with the character argument ch2 in the given string s and prints the new string

Example:

Input value of s = "TECHNALAGY"

ch1 = 'A'

ch2 = 'O'

Output : "TECHNOLOGY"

(ii) void Joysting(String s) with one string argument that prints the position of the first space and the last space of the given String s.

Example:

Input value of s = "Cloud computing means Internet based computing"

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(iii) void Joysting(String s1, String s2) with two string arguments that combines the two strings with a space between them and prints the resultant string

Example :

Input value of s1 = "COMMON WEALTH"

s2 = "GAMES"

Output : "COMMON WEALTH GAMES"

Set 5

1. List and explain Java buzzwords. Which factors are making Java famous language.
2. What are the benefits of inheritance? Explain various forms of inheritance with suitable code segments.
3. Define a class named movieMagic with the following description:
Instance variables/data members:
int year – to store the year of release of a movie
String title – to store the title of the movie.
float rating – to store the popularity rating of the movie.
(minimum rating = 0.0 and maximum rating = 5.0)
Member Methods:
(i) movieMagic() Default constructor to initialize numeric data members to 0 and String data member to "".
(ii) void accept() To input and store year, title and rating.
(iii) void display() To display the title of a movie and a message based on the rating as per the table below.

Rating	Message to be displayed
0.0 to 2.0	Flop
2.1 to 3.4	Semi-hit
3.5 to 4.5	Hit
4.6 to 5.0	Super Hit

Write a main method to create an object of the class and call the above member methods.
4. Write a class to overload a function num_calc() as follows:
i) void num_calc(int num, char ch) with one integer argument and one character argument, computes the square of integer argument if choice ch is 's' otherwise finds its cube.
ii) void num_calc(int a, int b, char ch) with two integer arguments and one character argument. It computes the product of integer arguments if ch is 'p' else adds the integers.
iii) void num_calc(String s1, String s2) with two string arguments, which prints whether the strings are equal or not.