Prelim 2 2025 P G Garodia

**Question 1**

Define the class called yacht with the following specification.

|  |  |
| --- | --- |
| **Data Members** | Purpose |
| int yType | to store the yard type (1- premium, 2- super premium) |
| long phno | phone of the customer |
| String name | to store the name of the customer |
| int hours | to store the number of hours the yacht is taken on the rent |
| int charges | to calculate and store the rental charge + 18% GST on the total charges |

|  |  |
| --- | --- |
| **Member Methods** | **Purpose** |
| void input() | To input and store the details of the customer |
| void compute() | To computer the rental charge  The rent for a yacht is charged on the basis of its type as follow   |  |  |  | | --- | --- | --- | |  | Type 1 (Premium) | Type 2(Super Premium) | | Hours | Charges | Charge | | For Two Hours | ₹ 1000 per hour | ₹ 3000 per hour | | For Five Hours | ₹ 700 per hour | ₹ 2500 per hour | | More than 5 hours but less than 10 hours | ₹ 500 per hour | ₹ 2000 per hour | | More than 10 hours | ₹ 10000 | ₹ 20000 | |
| Void display() | To display the details in given format  Output (for example if user selected type1 for 3 hours)   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Yacht Type | Phone No | Name | Hours | Charges | | Premium | 1234567890 | Mr. Shyam | 3 | 2100 | |

Write a main method create an object of the class and call the above methods through the object created.

**Question 2**

Write a program to accept the sentence and print it.

Count and print the number of small case, uppercase, special characters, numbers and spaces in the accepted sentence.

**Question 3**

Write a java program to create two single dimension array to store 10 names and their phone number (Accept them from the user).

Arrange the names in ascending order (using bubble sort) along with their phone numbers. Print unsorted and sorted names and their phone number.

**Question 4**

Write a menu driven program to perform the following.

Main menu

1. Spy number
2. Automorphic number
3. Exit

where

1. Spy number - Accept a number from the user check whether it is a Spy number or not.

Spy number – A positive integer is called a spy number if the sum and product of its digit are equal.

For Example – 1124

sum= 1 + 1 + 2 + 4 =8

product= 1 \*1\* 2 \* 4 =8

Yes. 1124 is a spy number

1. Automorphic() - Automorphic number is the number which is contained in the last digit of its square.

For Example 25 is an automorphic number as its square is 625 and 25 is present as the last two digits.

**Question 5** –

Write a Java program with the following overload function

1. void print() –

Print the sum of first 10 terms of Fibonacci series.

Fibonacci Series:- 0,1,1,2,3,5..

1. void print (int x)

Print the sum of the following series

n! means - 1 x 2 x 3.. n times

1. void print(String s)

To print the following.

For example s=”HAPPY”

H

HA

HAP

HAPP

HAPPY

Question 6 Write a program to create a 2 D integer array with 5 x 5 elements. Accept the values from the user. Perform the following operations on the array.

Print the array and the results

1. Product of the elements of each row
2. Sum of the elements of each column
3. Check if the sum of the left diagonal is equal to the sum of the right diagonal