Grade X Assignment Questions
(This document consists of 20 questions)

User defined methods

1. Write a non-static function name d addition to accept two integers and return the addition of the arguments. Write a public static void main function to invoke the addition function.

2. Specify the class finder with the following overloaded functions:
   void findMax(int n1,int n2)- to print the largest of the 2 nos
   void findMax(int n1,int n2,int n3)- to print largest of 3 nos
   void main()- to call the above functions

3. Design a class name ShowRoom with the following description:
   Instance variables / Data members:
   String name - To store the name of the customer
   long mobno - To store the mobile number of the customer
   double cost - To store the cost of the items purchased
   double dis - To store the discount amount
   double amount- To store the amount to be paid after discount
   Member methods:
   ShowRoom() - default constructor to initialize data members
   void input () - To input customer name, mobile number, cost
   void calculate () -To calculate discount on the cost of purchased items, based on following criteria

Cost	**Discount(in percentage)**
Less than or equal to ₹ 10000	5%
More than ₹10000 and less than or equal to ₹ 20000	10%
More than ₹ 20000 and less than or equal to ₹ 35000	15%
More than ₹ 35000	20%

   Void display () - To display customer name, mobile number , amount to be paidafter discount.
   Write a main method to create an object of the class and call the above member methods.

Constructors

1. Write a program to print the names of students by creating a Student class. If no name is passed while creating an object of Student class, then the name should be "Unknown", otherwise the name should be equal to the String value passed while creating object of Student class.

2. Write a program by using a class with the following specifications:

   Class name — Hcflcm
   Data members/instance variables:

   int a
   int b
   Member functions:

   Hcflcm(int x, int y) — constructor to initialize a=x and b=y.
   void calculate( ) — to find and print hcf and lcm of both the numbers..

Library Classes

1. Write a program in Java to input three numbers and display the greatest and the smallest of the two numbers.
   Hint: Use Math.min( ) and Math.max( )
   Sample Input: 87, 65, 34
   Sample Output: Greatest Number 87
   Smallest number 34

2. Write a program in Java to input a character and check whether a given character is an uppercase or lowercase.
3. Write a program in Java to input a character and check whether a given character is a digit or special character.
4. Write a java program to show the use of floor and ceil function of Math class.

Encapsulation

1. Identifying the different variables like local, instance, arguments, private, public, protected, class variable, static variables, static methods.

```
class Sample
{
        int a;
        private float f;
        static int b;
        protected double d;

        Scanner sc=new Scanner(System.in);
        public static  void set()
        {
                b=5;
        }

        void accept()
```

```
        {
                a=sc.nextInt();
                f=sc.nextFloat();
                d=sc.nextDouble();
        }

        void process(float x, double y)
        {
                f=x;
                d=y;
                double ans=f+d;
        }

}
```

Arrays

1. Write a java program to declare an one dimensional array of size 10 with each element of type integer. Accept the elements from user and display in array. Display the sum of array on new line.
2. Write a java program to implement bubble sort for an one dimensional array of float elements.
3. Write and function int Linear_search(int arr[], int n) with an array and an integer as parameter to search an element in an one dimensional array. The function returns position if found else returns -1.
4. The annual examination result of 50 students in a class is tabulated as follows:

Rollno	Subject A	Subject B	Subject C

Write a program read data, calculate and display the following

a. Average marks obtained by each student.
b. Print the roll number and average mark of the student whose average mark is above 80.
c. Print the roll number and average mark of the student whose average mark is below 40.

String Handling

1. Output

```
public static void main(String args[])
{
 String str1 = "";
 char arr[] = { 'j', 'a', 'v', 'a', ' ', 'p',
 'r', 'o', 'g', 'r', 'a', 'm', 'm', 'i', 'n', 'g' };
 String str2 = new String(arr);
 String str3 = new String(str2);
```

```
 System.out.println(str1);
 System.out.println(str2);
 System.out.println(str3);
}
```

2. Output

```
public static void main(String args[])
  {
    String str = "Java Programming";
    String str1 = "Java Programming";

    String str2 = str1;
    if (str.equals(str1))
      System.out.println("Equal Case 1");
    if (str == str1)
      System.out.println("Equal Case 2");
  }
```

3. Write a program in Java to input a sentence and replace every word by “run” if the word has multiple a’s in it. Display the old and new sentence.

4. In Piglatin a word such as KING is replaced by INGKAY, while TROUBLE becomes OUBLETRAY and so on. The first vowel of the original word becomes the start of the translation, any preceding letters being shifted towards the end and followed by AY.
   Words that begin with a vowel or which do not contain any vowel are left unchanged.
   Design a class Piglatin using the description of the data members and member functions given below:
   Class name : PigLatin
   Data members
   txt : to store a word
   len : to store the length

   Member functions

   PigLatin() : constructor to initialize data members
   voidreadstring() : to accept the word input in uppercase
   void convert() : converts the word into its piglatin form and displays the word.(changed or unchanged)
   void consonant() : counts and displays the number of consonants present in the given word.
   Specify the class Piglatin giving details of the constructor, void readstring(), void convert() and void consonant(). Also define a main function to create an object and call methods accordingly to enable the task.

5. Write java program to accept a string from user and check if the string is a palindrome or not. Display a suitable message.
6. Write a java program to accept a sentence from user and arrange the words in alphabetic order based on the first alphabet of the word.