Std: X   Date: 04/01/2019

Sub: Computer Applications   Time: 2 Hours   Marks: 100

Attempt all Questions from Section A and any 4 from Section B.

SECTION A [40 Marks]
Attempt all Questions

Question 1. [10]

a) What are comments/remarks ?

b) Write a java statement to compute Discount. Divide the variable total by 100.Multiple the result by MP.

c) What is the difference between Scanner functions next( ) and nextLine( )?

d) Write the function prototype for the function "Sum" that takes an integer variable x as its argument and returns a value of float data type.

e) Write valid Java statements to perform the following on Strings:

i) Extract 10 characters from the first character to tenth of index in String address.

ii) To print the position of the first occurrence of letter 'R' in the String city.

Question 2. [10]

a) Consider the given array and write a valid Java program code to update each element of the array by adding 3.

int m[ ] = {4,6,8,12,16,3,9,7};

b) Give the output of the following:

```
class Example
{
        void main( )
{
    int x= 1, y = 2, z = x+y;
    System.out.println(x+ y + z);
    System.ou.println(x + " " +y + " "z);
    System.out.println(x + "+" + y + "="+z);
}}
```

c) Give the difference between

i) Call by value and call by reference.

ii) Ternary operator and if else statement.

d) Give the output of the following:

```
void Test ( )
{
    int a,b;
    for( a =1,b =5; a<5 && b >1; a=a+1,b=b-1)
    {
            System.out.println(a);
            System.out.println(b);
    } }
```

Question 3.

a) Give the output of the following:

i)
```java
class Display()
{
void main()
{
double a = 5.5;
str1 String.valueOf(a);
System.out.println(str1);
} }
```

b) Define an algorithm.

c) Give the difference between Source code and Byte code.

d) What is meant by a package? Name any 2 Java application programming interface packages.

e) Find errors in the following and rewrite the statements correctly to assign values to an integer array.
```java
int a = new int(5)
for (int i=0;i<=5;i=i + 1)  a[i]=i ;
```

f) Write a Java expression for the following:

$$z = x^3 + y^3 - xy/z$$

g) Write the output of the following:
```java
char ch;
int x=97;
 do
  {
    ch = (char)x;
    System.out.println(ch + " ");
     if(x% 10 == 0)
        break;
     x= x + 1;
  }
 while(x<=100)
```

h) Explain the term Type Casting.

i) Give the output of the following:
```java
String A = "26", B = "100";
String D = A + B + "200";
int x = Integer.parseInt(A);
int y = Integer.parseInt(B);
int d= x + y;
System.out.println("Result 1"+D);
System.out.println("Result 2 " +d);
```

j) Give 2 examples each of
   a) Selection Statement
   b) Loop construct

SECTION B [60 Marks]
Attempt any four Questions from this Section.
Each program should be written using variable description/Mnemonic codes so that logic of the program is clearly depicted.

Question 4.   [15]

Define a class called Transport with the following description:

Instance variables:

String name: to enter the name
int wt   :   to enter the weight of the parcel
int charge :   to calculate the charge to be paid for the parcel.

Member Methods:

i)void input( )   : to input the details
ii)void compute( )   :to compute the charges to be paid.

The charges for a Transport Company is as follows:

Weight of the parcel	Charges/kg
Upto 10 kg	₹ 30
Next 20 kg	₹ 20
Next 20 kg	₹ 10
More than 50 kg	₹ 5

iii)void display( )   :to display the details

Write a main method to create an object of the class and call the above Member Methods.

Question 5.   [15]

Define a class Array and a method Display( ) to accept list of integers in a single subscripted variable, where the list will be terminated when zero is entered from the keyboard.
Perform the following using above created array.
i)Print elements of array in single line
ii)Sum of all the elements of array divisible by 5
iii)Factorial of single digit integers less than or equal to 7

Question 6.   [15]

Write a menu driven program that displays the result of the following evaluations based on the users entry of choice from the key board.

i)Natural logarithm of a number.
ii)Absolute of a number
iii)Square root of a number
iv)Random number between 0 and 1

Question 7.   [15]

Design a class to overload a function Volume( ) as follows:
i)Volume(int s)To calculate and display the volume of a cube.
ii)Volume(int r)
To calculate and display the volume of a sphere.
iii)Volume(int l ,int b, int h)
To calculate and display the volume of a cuboid.

Question 8. [15]

Write a program to assign 6 words in array of string. Print each name on different lines along with count of Capital letters in each name. Print the result as follows:

	Word	Total Capital letters
Example	DYNAMIC	7
	EnGlish	3

Question 9.

a) Write a program using Scanner class to enter a Binary number and display its decimal number equivalent. [7]

b) Write a program to create a function   void   IsPalindrome(int n) , to check and print whether 'n' is a palindrome number or not. [8]

To extract the digits do not use modulus (%) operator.