COMPUTER APPLICATIONS

(Theory)

(Two Hours)

10 Years Question Paper.com

Answers to this Paper must be written on the paper provided separately.

*You will **not** be allowed to write during the first **15** minutes.*

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

This Paper is divided into two Sections.

*Attempt **all** questions from **Section A** and **any four** questions from **Section B.***

The intended marks for questions or parts of questions are given in brackets[].

SECTION A (40 Marks)

*Attempt **all** questions*

Question 1.

(a) What are the default values of the primitive data type ***int*** and **float**? [2]

(b) Name any two OOP's principles. [2]

(c) What are identifiers? [2]

(d) Identify the literals listed below: [2]

(i) 0.5 (ii) 'A' (iii) false (iv) "a".

(e) Name the wrapper classes of **char** type and **boolean** type. [2]

Question 2.

(a) Evaluate the value of **n** if value of p= 5, q=19

int n = (q-p)>(p-q) ? (q-p) : (p-q); [2]

(b) Arrange the following primitive data types in an ascending order of their size:

(i) char (ii) byte (iii)double (iv) int. [2]

(c) What is the value stored in variable **res** given below:

double res = Math.pow ("345".indexOf('5'), 3); [2]

(d) Name the two types of constructors. [2]

(e) What are the values of **a** and **b** after the following function is executed, if the values passed are 30 and 50:

```
void paws( int a, int b)
        { a= a+b;
          b=a-b;
          a=a-b;
          System.out.println( a+ ", "+b);
        }
```

[2]

Question 3.

(a) State the data type and value of **y** after the following is executed:

```
char x='7';
y=Character.isLetter(x);
```

[2]

(b) What is the function of **catch** block in exception handling? Where does it appear in a program? [2]

(c) State the output when the following program segment is executed:

```
String a ="Smartphone", b="Graphic Art":
        String h=a.substring(2,5);
        String k= b.substring(8).toUpperCase();
        System.out.println(h);
        System.out.println(k.equalsIgnoreCase(h));
```

[2]

(d) The access specifier that gives the most accessibility is _____and the least accessibility is_____. [2]

(e) (i) Name the mathematical function which is used to find **sine** of an angle given in radians.

(ii) Name a string function which removes the blank spaces provided in the prefix and suffix of a string. [2]

(f) (i) What will this code print?

```
int arr[] =new int [5];
System.out.println(arr);
```

(i) 0 . (ii) value stored in arr[0] (iii) 0000 (iv)garbage value

(ii) Name the keyword which is used to resolve the conflict between method parameter and instance variables/fields. [2]

(g) State the package that contains the class:

(i) BufferedReader

(ii) Scanner. [2]

(h) Write the output of the following program code:

```
char ch;
int x=97;
                do
                {
                 ch= (char) x;
                 System.out.print(ch + " ");
                  if( x%10==0)
                   break;
                   ++x;
               }while(x<= 100);
```

[2]

(i) Write the Java expressions for:

$\frac{a^2+b^2}{2ab}$ [2]

(j) If int y=10 then find int z = (++y *(y++ +5)); [2]

SECTION B (60 Marks)

Attempt ***any four*** questions from this Section.

The answers in this Section should consist of the ***Programs in either Blue J environment or any program environment with Java as the base.***

Each program should be written using ***Variable descriptions/Mnemonic Codes*** *so that the logic of the program is clearly depicted.*

Flow-Charts and Algorithms ***are not required.***

Question 4.

Define a class called **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 the vno and hours.

void calculate() – To compute the parking charge at the rate of ₹3 for the first hour or part thereof, and ₹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. [15]

Question 5.

Write two separate programs to generate the following patterns using iteration (loop) statements:

(a)
```
*
*#
*#*
*#*#
*#*#*
```

(b)
```
5 4 3 2 1
5 4 3 2
5 4 3
5 4
5
```

[15]

Question 6.

Write a program to input and store roll numbers, names and marks in 3 subjects of ***n*** number students in five single dimensional array and display the remark based on average marks as given below: (The maximum marks in the subject are 100)

Average marks = $\frac{\text{Total Marks}}{3}$

Average marks	Remark
85 – 100	EXCELLENT
75 – 84	DISTINCTION
60 – 74	FIRST CLASS
40 – 59	PASS
Less than 40	POOR

[15]

Question 7.

Design a class to overload a function Joystring() as follows:

(i) void Joystring (String s, char ch1, char ch2) with one string argument 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 Joystring (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 ="Cloud computing means Internet based computing"

Output : First index : 5

Last index : 36

(iii)void Joystring (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 "

Input value of s2="GAMES "

Output : COMMON WEALTH GAMES

(use library functions)

[15]

Question 8.

Write a program to input twenty names in an array. Arrange these names in descending order of alphabets, using the bubble sort technique. [15]

Question 9.

Using the switch statement, write a menu driven program to:

(i) To find and display all the **factors** of a number input by the user (including 1 and excluding number itself).

Example:

Sample Input : n =15

Sample Output : 1,3, 5

(ii) To find and display the **factorial** of a number input by the user (the factorial of a non–negative integer ***n,*** denoted by n!, is the product of all integers less than or equal to n.

Example:

Sample Input : n =5

Sample Output : 5! = 1×2×3×4×5 =120.

For an incorrect choice, an appropriate error message should be displayed. [15]