ST. JOSEPH'S COLLEGE, PRAYAGRAJ
PRE BOARD EXAMINATION 2023-24
CLASS 10
COMPUTER APPLICATIONS

Maximum Marks: 100
Time Allowed: Two Hours
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
*(Attempt **all** questions from this **Section.**)*

Question 1

Choose the correct answer and write the correct option. [20]

(i) **Assertion (A):** The dangling else ambiguity can be resolved by using { }.
Reason (R): The ambiguity that arises due to less number of if compared to else in nested loop is called as dangling else.
a) Both Assertion (A) and Reason (R) are true and Reason (R) is a correct explanation of Assertion (A)
b) Both Assertion (A) and Reason (R) are true and Reason (R) is not a correct explanation of Assertion (A)
c) Assertion (A) is true and Reason (R) is false.
d) Assertion (A) is false and Reason (R) is true.

(ii) String is a _____.
a) Primitive data type
b) Composite data type
c) Basic data type
d) Class

(iii) The index of the last character in a String is always –
a) length
b) length( )
c) length( ) – 1
d) length – 1

(iv) The return type of endsWith() method is _____
a) int
b) String
c) boolean
d) char

(v) If a loop is executing for n times, the condition is checked for ____times
a) n
b) n-1
c) n+1
d) 10

(vi) The keyword used to execute the group of statements when none of the case constants matches in a switch statement -
a) break
b) case
c) default
d) else

(vii) Number of bytes reserved to store the String "Java Program" -
a) 12 bytes
b) 11 bytes
c) 24 bytes
d) 18 bytes

(viii) Method that doesn't has any return type is called as _____
a) Constructor
b) instance method
c) static method
d) void

(ix) Converting from an object of Wrapper class to Primitive data type is _____
a) Autoboxing
b) Unboxing
c) Boxing
d) Both a) and c)

(x) The parameter passed to toUpperCase( ) method of Character wrapper class is _____
a) No parameter
b) char
c) String
d) int

(xi) Method that doesn't change the state of an object/variable is called _____ .
a) Pure method
b) Accessor
c) Mutators
d) Both a) and b)

(xii) **Assertion (A):** When any object is passed as parameters, it is called as call by reference.
Reason(R): The values stored in the object of actual parameter is copied into formal parameter.
a) Both Assertion(A) and Reason(R) are true and Reason(R) is a correct explanation of Assertion(A)
b) Both Assertion(A) and Reason(R) are true and Reason(R) is not a correct explanation of Assertion(A)
c) Assertion (A) is true and Reason(R) is false.
d) Assertion (A) is false and Reason(R) is true.

(xiii) When any primitive data type values are passed as parameters, it is _____
a) Call by value
b) Call by reference
c) Can be call by value or reference
d) None of the above

(xiv) The method that has return type other than void should consist of _____
a) calculation statement
b) looping statement
c) condition statement
d) return statement

(xv) All the instance methods of a class should be declared ____
a) With the keyword static
b) Without the keyword static
c) With or without the keyword static
d) With the keyword void

(xvi) An example for empty loop is _____
a) while(++a<=10);
b) for(i=1;i<=10;i++);
c) do{ }while(a++<=10);
d) All of the above

(xvii) The variables declared within a method are called as _____
a) Local variables
b) Instance variables
c) Class variables
d) Parameters

(xviii) String method used to get part of a string is _____
a) concat( )
b) length( )
c) substring( )
d) indexOf( )

(xix) Statement used to terminate the program _____
a) break
b) continue
c) System.exit( );
d) System.exit(0);

(xx) "Hello".compareTo("Help") returns _____
a) 4
b) -4
c) false
d) 1

Question 2

(i) What will the output of the following code? [2]

```
String s="Prayagraj";
System.out.println(s.indexOf('p')+s.lastIndexOf('a'));
```

(ii) Write Java statements for the following: [2]

a) To display the String s after removing the last word.

b) To display the first letter of the String s in capitals and rest of the letters in small letters.

(iii) Write output for the following: [2]

a) System.out.println(Math.max(Math.floor(Math.abs(-3.6)), Math.abs(Math.floor(-3.6))));

b) System.out.println(Math.pow(Math.floor(-4.4), Math.abs(-3.0)));

(iv) Write output for the following: [4]

String s= "Academic Year-2023-24";

a) System.out.println((s.substring(3,6) + s.substring(11,13)).toUpperCase( ));

b) System.out.println(s.endsWith("2024"));

c) System.out.println(Integer.parseInt(s.substring(14,16))+5);

d) System.out.println(Character.isLetterOrDigit(s.charAt(8)));

(v) Write the difference between ***Selection Sort*** and ***Bubble Sort***. [2]

(vi) Name the built-in method and the class name to which it belongs, that is used to perform the following: [2]

a) To convert the String consisting of digits to double data type.

b) To join strings.

(vii) Correct the errors if any in the following code. Also mention the type of error [2]

```
String s="12345";
for(int i=0;i<=5;i++)
System.out.println(s.charAt(i));
```

(viii) Mention the output for the following code snippets: [4]

a)
```
for(int i=1;i<5;i++)
{
        for(int j=i;j>=1;j--)
                System.out.print(j);
        System.out.println();
}
```

b)
```
int a=10;
switch(a++)
{
        case 10: System.out.println(a++);
        case 11: System.out.println(++a);
                 break;
        case 12: System.out.println(a);
        default: System.out.println(a-3);
}
```

SECTION B

*(Answer any **four** questions from this Section.)*

The answers in this section should consist of the programs in either BlueJ environment or anyprogram environment with java as the base.

Each program should be written using variable description / mnemonic codes so that the logic of the program is clearly depicted.

*Flowcharts and algorithms are **not** required.*

Question 3 [15]

Define a class **CourierService** with the following descriptions:

Class name: *CourierService*

Instance Variables/ Data Members:

String name: To store the name of the customer.

String type: To store the type of parcel (Ordinary/Express).

int weight: To store the weight of the parcel.

double charge: To store the calculated charges.

Member methods/functions:

CourierService( ): Default constructor to initialize all the instance variables.

void accept( ): To accept the name of the customer, type and weight of the parcel.

void calculate( ): To calculate the charges as per the following tariff:

Weight in Kgs	Charge Ordinary	Charge Express
Upto 10	Rs. 800	Rs. 1500
11 – 20	Rs. 1500	Rs. 3000
Above 20	Rs. 4000	Rs. 5500

void display( ): To display the details.

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

Question 4 [15]

Write a program to input and store roll numbers, names and marks in 3 subjects of n number of 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 = total marks/3

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

Question 5 [15]

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 string 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)

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

Question 6 [15]

Write a program to input 10 student's name and father's name in array, sort them according to name in ***descending order*** using ***selection sort technique*** and print ***unsorted*** and ***sorted*** both values.

Question 7 [15]

Write a program to input numeric value for 5 x 5 array and do the following:

1. Calculate and print the sum of bordered value.
2. Print above right diagonal values on their original position.

Question 8 [15]

Write a program to input the name of a person in uppercase. Print initials of each name with complete surname but if the name in single word then print name as it is.

Example 1:

Input: Enter a name (in uppercase only): BHANU PRATAP SINGH RANA
Output: B. P. S. RANA

Example 2:

Input: Enter a name (in uppercase only): ROMENDRA
Output: ROMENDRA

**********ALL THE BEST**********