

GREENLAWNS HIGH SCHOOL

PRELIMINARY EXAMINATION FOR THE ACADEMIC YEAR 2022-2023

COMPUTER APPLICATION

MARKS : 100

STD X

TIME : 2 HRS

You will not be allowed to write during the first 10 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)

Question 1.

- i) The keyword which indicates that the method returns no value:
a) Public b)Static c)Void d) Abstract
- ii) The jump statement that is used inside a switch case construct to terminate a statement sequence
a) continue b) break c)return d)goto
- iii) A _____ method needs to be called with the help of an object.
a) void b) class c) non-static d)Static
- iv) The ASCII code of 'G' is _____.
a) 70 b) 71 c)102 d)103
- v) Parameters used in the method call statement are
a) Actual parameters
b) Informal parameters

- c) Formal parameters
d) Void parameters
- vi) Return data type of isLetter(char) is
a) Boolean b) boolean c) int d)char
- vii) The access modifier that gives least accessibility is:
a) private b)public c) protected d) package
- viii) A single dimensional array contains N elements. What will be the last subscript?
a) N b) N-1 c) N-2 d) N+1
- ix) Wrapper classes are available in _____package.
a) java.io
b) java.util
c) java.lang
d) java.awt
- x) When primitive data type is converted to its corresponding objects of its class, it is called as _____.
a) Boxing
b) Explicit type conversion
c) Unboxing
d) Implicit type conversion
- xi) What is printed by the below statements?

```
int N[]={2,6,12,24,36};  
  
System.out.println(N[2]+ "\t"+N[1]+ "\t"+ N[3]+ "\t"+ N[4-2]);
```


a) 2 6 12 24
b) 12 6 24 12
c) 6 12 24 36
d) None of these
- xii) Does the constructor automatically initialise an array?
a) Yes b) No c) Sometimes d) It depends
- xiii) Packages in Java are :
a) A special class
b) Group of classes

- c) A special variable
- d) None of these
- xiv) Each primitive data type belongs to a specific
 - a) Block
 - b) Object
 - c) Wrapper class
 - d) None of these
- xv) Composite data types are formed by using
 - a) Class variables
 - b) Primitive data type
 - c) Static data type
 - d) Method name
- xvi) In which way must the array be sorted for binary search to be applicable on it?
 - a) Ascending
 - b) Descending
 - c) Does not matter
 - d) Sorting not necessary
- xvii) How do you access the length of a string S?
 - a) S.len
 - b) S.length
 - c) S.length()
 - d) S.size()
- xviii) What does the method trim() do?
 - a) It remove leading whitespace characters
 - b) it removes both the leading and trailing white space
 - c) it remove trailing white space characters
 - d) it converts the entire string to lower case
- xix) Find the output of the following code:
`System.out.println("2023India".indexOf('I'));`
 - a) 3 b) 4 c) 5 d) 1
- xx) A variable that is bounded to the object itself is called as
 - a) Instance variable c) local variable
 - b) class variable d) argument variable

Question 2.

- i) View the following code and answer: [2]
class qi

```
{ static void main() {  
    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("Result1 =" +D);  
    System.out.println("Result2 =" +d);}}
```

- ii) Predict the output of the following: [2]
System.out.println(Math.pow(3,2)+Math.ceil(4.2));

- iii) How can you create object(s)? [2]

- iv) Write an expression in Java for [2]

$$\sqrt{\frac{2x+x^3}{a+b}}$$

- v) What will be the value of [2]
 $X*=Y+5$ if $x=2$ and $y=2$?

- vi) What will be the output of the following program? [2]

```
int a;  
for(a=0;a<30;a++){  
    if(a==5)  
        break;  
}  
System.out.println(a);
```

- vii) Convert the following while loop to the corresponding for loop: [2]

```
int x=10,y=20;
while(y>=1)
{System.out.println(x*y);
  y--;}

```

viii) In what way are the following data different? [2]

“false” and false

ix) What will be the output of the following program segment? [2]

```
int [] ar={2,4,6,8};
ar[0]=23;
ar[3]=ar[1];
System.out.println(ar[0]+ " " +ar[3]);

```

x) Give the output: [2]

```
String s="GREATER";
System.out.print(s.substring(5));
System.out.println(Character.toLowerCase(s.charAt(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 any program 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.

Define a class Teacher described as below:

Data Members : Name, Address, Phone, Subject Specialization, Monthly Salary, Income Tax.

Member Methods:

(i) To accept the details of a teacher including the monthly salary.

(ii) To display the details of the teacher.

(iii) To compute the annual Income Tax as 10% of the annual salary above 5,00,000.

Write a main method to create object of a class and call the above member method.

Question 4.

Write a class with the name volume using function overloading to compute the volume of a cube, a sphere and a cuboid.

volume of a cube (vc) = $s*s*s$

volume of a sphere (vs) = $\frac{4}{3} * \pi * r * r * r$ (where $\pi = 3.14$ or $\frac{22}{7}$)

volume of a cuboid (vcd) = $l * b * h$

Question 5.

Sort an array using Bubble Sort. Pass array as argument.

Question 6.

Write a program to initialize the following character arrays and print a suitable message after checking the arrays whether the two arrays are identical or not. Make suitable use of boolean data type.

X[]={‘m’, ‘n’, ‘o’, ‘p’}; and Y[]={‘m’, ‘n’, ‘o’, ‘p’};

Question 7.

Write a program to input a sentence. Convert the sentence into uppercase letters. Display the words along with frequency of the words which have at least a pair of consecutive letters.

Sample Input : Modem is an electronic device

Sample output : Modem Device

Number of words containing consecutive letter 2

Question 8.

A string is said to be ‘Unique’ if none of the letters present in the string are repeated. Write a program to accept a string and check whether the string is Unique or not. The program displays a message accordingly.

Sample Input : COMPUTER

Sample Output : Unique String