

GREENLAWNS HIGH SCHOOL
PRELIMINARY EXAMINATION FOR THE YEAR 2020
SUBJECT: COMPUTER APPLICATIONS **STD: X**
TIME: 2 Hours **MARKS: 100**

Answers to this paper must be written on the paper provided separately. The time given at the head of this paper is the time allowed for writing the answers.

This paper is divided into two Sections. You are to answer *all* questions from Section A and any *four* questions from Section B.

Section A(40 Marks)

(Attempt *all* questions from this Section.)

While answering all questions from this part, indicate briefly the working and reasoning wherever required.

- Q1. a) State the difference between 12.3f and 12.3d. [2]
b) Find the output of z : [2]
 int y = 14;
 int z = ++y * (y-- + --y)
c) Show the use of logical operator && with an example. [2]
d) Explain punctuators with an example. [2]
e) Define counter variable in Java. [2]
- Q2. a) State the total size in bytes of the arrays a[4] of char data type and p[4] of float data type. [2]
b) Which operator in Java is used to create an object? [2]
c) Write two characteristics of a constructor. [2]
d) How is a package declared? [2]
e) What will "APPLICATIONS" substring (2, 5) return? [2]

Q3.

- a) Differentiate between the following pairs:
- i) While and do-while loop. [2]
 - ii) Compiler and Interpreter [2]
- b) How many bits double precision uses to store a value? [2]
- c) Write a statement to declare a matrix of 3 rows and 5 columns of integer type. [2]
- d) Which OOPs concept provides the principle of reusability? [2]

Q4. a) Express the following mathematical expression in Java. [2]

$$Z = \sqrt{a^2 + b^2}$$

b) Express the following if statement using logical NOT operator. [2]

if(a%2==0)

c) State the data type and values of a and b after following segment is executed [2]

```
String s1= "Computer", s2= "Applications";  
a=(s1.compareTo(s2));  
b=(s1.equals(s2));
```

d) Identify and name the following tokens: [2]

i) private

ii) 'c'

iii) []

iv) <

e) i) What is the role of the keyword void in declaring functions? [1]

ii) If a function contains several return statements, how many of them will be executed? Which OOP principle implements function overloading? [1]

SECTION B

Each program should be written in such a way that it clearly depicts the logic of the problem. This should be achieved by using mnemonic names and comments in the program.

(Attempt any four) (4 X 15 marks)

Q 5. Define a class DanceAcademy with following description: [15]

Instance Variables :

Enrollno of type int

Name of type String

Style of type String

Fee of type double

Member Methods :

void enrollment() : to allow users to enter values for Enrollno, Name, Style.

void chkfee() : to assign the value of Fee variable according to the Style entered by the user according to the criteria as given below:

Style	Fee
Classical	10000
Western	8000
Freestyle	11000

void display() : to allow users to view the details of all the data members.

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

Q 6. Accept an array of 3 rows and 4 columns from the console. Print the Sum of elements of each column of the array. [15]

Q 7. Write a program to print sum of all the odd digits of a number. [15]
(using do-while)

For eg. 123456

Output : 9

Q 8. Write a program in Java to input a number and check whether it is Fascinating Number or not.

Fascinating Numbers : Some numbers of 3 digits or more exhibit a very interesting property. The property is such that, when the number is multiplied by 2 and 3, and both these products are concatenated with the original number, all digits from 1 to 9 are present exactly once, regardless of the number of zeroes.

Consider the number : 192

$$192 \times 1 = 192$$

$$192 \times 2 = 384$$

$$192 \times 3 = 576$$

Concatenating the results : 192384576

It could be observed that '192384576' consists of all digits from 1 to 9 exactly once. Hence, it could be concluded that 192 is a Fascinating number.

Some examples of Fascinating numbers are

192, 219, 273, 327, 1902, 1920, 2019 etc

Q9. Write a program to compute and display the sum of the following series: [15]

$$\frac{1+2}{1 \times 2} + \frac{1+2+3}{1 \times 2 \times 3} + \dots + \frac{1+2+3+4+\dots+n}{1 \times 2 \times 3 \times 4 \times \dots \times n}$$

Q10. Write a program to print the longest word in a given sentence. [15]