

GREENLAWNS HIGH SCHOOL
PRELIMINARY EXAMINATION YEAR 2021

SUB : COMPUTER APPLICATION
STD X

MARKS : 100
TIME : 2 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(40 MARKS)

Attempt all questions

Question 1.

a) State the levels of visibility offered by Java. [2]

b) if String x= "Computer"; [2]

String y= "Application";

What do the following functions return for:

i) System.out.println(x.equals(y));

ii) System.out.println(x.substring(2,6));

c) Define static variable. Give one example also. [2]

d) Write the corresponding Java expression/statement for the following mathematical statements. [2]

i) $|a-b|+b^2$

ii) $3\sqrt{a}+3\sqrt{b}$

e) What is the value of 'x' after evaluating: [2]

$x+=x++ + ++x/2$; if x=3 initially?

Question 2.

a) Find the value of T after execution of the following statement: [2]

$T=1000+500>1500?25:20$;

b) If int n[{1,2,3,5,7,9,13,16}] what are the values of x and y? [2]

i) $x=\text{Math.pow}(n[4],n[2])$;

ii) $y=\text{Math.sqrt}(n[5]+n[7])$;

- c) Name the operator that is used to [2]
 i) allocate memory space for an object.
 ii) access the individual members of a class.
- d) Why is an object called an instance of a class. [2]
- e) Analyse the following program segment and determine how many times the loop will be executed and what will be the output of the program segment. [2]
- ```
int k=2, j=4;
while(++j<12)
k*=j;
System.out.println(k);
```

### Question 3.

- a) Give the output of the following string functions: [2]  
 i) "MISSISSIPPI".indexOf('S')+ "MISSISSIPPI".lastIndexOf('I');  
 ii) String b= "lockdown";  
 String h=b.substring(2,5);
- b) What is initialisation? Explain with an example. [2]
- c) What is the error in the following program: [2]
- ```
double x=10;
int y=x;
System.out.println(y);
```
- d) Explain && and || operator. [2]
- e) Name the method of the Scanner class that allows you to input [2]
 i) double type value
 ii) char type value

Question 4.

- a) State one similarity and one difference between while and do-while loop. [2]
- b) Explain autoboxing. [2]
- c) Difference between boolean and Boolean. [2]
- d) Which of the following run at least once when begins? [2]
 i) break ii) for iii) while iv) do-while
- e) State the total size in bytes, of the array x[5] of int data type and y[5] of double data type. [2]

SECTION B(60 MARKS)

Attempt any four questions from this Section.

The answer in this Section should consists 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 5.

[15]

Create a class stock as given:

Class Name : stock
Data members/variables : pname (String type)
qty(integer), price, total,
discount, netPrice(all double
type)

Member functions/methods :

- i) stock(String n, int q, double p) : A constructor to assign 'n' to pname, 'q' to qty, 'p' to price.
- ii) void calculation() : to calculate total cost, discount as 20% on total cost is more than 15000/- otherwise no discount. Also find net price to be paid excluding discount.
- iii) void printAmount() : to display product name, price, quantity, total cost, discount and net price to be paid.

Write a main program to input name of product, unit price of product and quantity and by using above class and functions. Print details of the product.

Question 6.

[15]

WAP to input 10 numbers into an integer array and shift all the even numbers to the beginning of the array and odd numbers to the end of the array, without changing the order of the numbers.

Question 7.

[15]

Define a class Telephone with the following descriptions:

Data Members:

int prv, pre - to store the previous and present meter reading

int call - to store the calls made (i.e pre-prv)

String name - to store name of the customer

double amt - to store the amount

double total - to store the total amount to be paid

Member Methods:

void input() - to input the previous reading, present reading and name of the customer

void cal() - to calculate the amount and total amount to be paid

void display() - to display the name of the customer, calls made, amount and total amount to be paid.

WAP to compute the monthly bill to be paid according to the given conditions:

Calls made	Rate
Upto 100 calls	Free
For the next 100 calls	90 paise per call
For the next 200 calls	80 paise per call
More than 400 calls	70 paise per call

However, every customer has to pay ₹ 180 per month as monthly rent for availing the service.

Question 8.

[15]

Write a program in Java to input a number and check whether it is a

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 or 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.

Question 9.

[15]

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

- i. double series(double n) with one double argument and returns the sum of the series. $\text{Sum} = 1/1 + 1/2 + 1/3 + \dots + 1/n$
- ii. double series(double a, double n) with two double arguments and returns the sum of the series. $\text{Sum} = 1/a^2 + 4/a^5 + 7/a^8 + 10/a^{11} + \dots$ to n terms.

Question 10.

[15]

WAP to store 10 numbers in an array and arrange the numbers in descending order using Bubble Sorting technique. Print the sorted array.
