

STD X

GREENLAWNS HIGH SCHOOL

TIME : 2 Hrs. PRELIMINARY EXAMINATION FOR THE YEAR 2019

COMPUTER APPLICATIONS

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) Name any two OOP's principles. [2]
- b) What is the purpose of the keyword *new*? [2]
- c) State the two kinds of data types. [2]
- d) What is meant by private visibility of a method? [2]
- e) What is a package? Give an example. [2]

Q2.

- a) Explain the term type casting? [2]
- b) Write an equivalent Java syntax for the following expression: [2]

$$x = \frac{0.05 - 2b^3}{a - b}$$

- c) What is meant by infinite loop? Give an example. [2]
- d) if array[]={2,4,6,8,10};
  - i) What is array.length? [1]
  - ii) What is array[3]? [1]
- e) Write a Java statement to input /read the following from the user using the keyword [2]
  - i) Character
  - ii) Double

Q3.

- a) Name the keyword that
  - i) is used for allocating memory to an array [1]
  - ii) causes the control to transfer back to the method call [1]
- b) Write the function prototype for the function 'num' that takes integer variable as its argument and returns a value of double data type. [2]
- c) Write an expression for  $\frac{(a+b)^n}{\sqrt{3+b}}$  [2]
- d) Convert the following segment into an equivalent do-while loop. [2]

```
int x,c;
for(x=10,c=20;c>=10;c=c-2)
x++;
```

- e) Why is an object called an instance of a class? [2]

Q4.

- a. Write the output of the following:
  - i) System.out.println(Character.isUpperCase('R')); [1]
  - ii) System.out.println(Character.toUpperCase('j')); [1]
- b) Explain the concept of 'fall through' with an example. [2]
- c) Give an example each of a primitive data type and a composite data type. [2]
- d) What will be the result stored in x after evaluating the following expression? [2]

```
int y=10 then find x=(++y*(y++ +5));
```

- e) What will the following code output? [2]

```
String s="Independence";
System.out.println(s.indexOf('n'));
System.out.println(s.lastIndexOf('n'));
```

### 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)

Q5. Write a menu driven program to perform the following:

a) to print the following pattern

```
A
A B
A B C
A B C D
A B C D E
```

b) to compute and display the sum of the following series:

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

Q6. Write a class with the name volume using function overloading that computes the volume of a cube, a sphere and a cuboid.

Formula ---- volume of a cube (vc)=s\*s\*s;  
volume of a sphere(vs)=4/3 \*π\*r\*r\*r ( where π=3.14)  
volume of a cuboid(vcb)=l\*b\*h

Q7. Write a program to enter a sentence from the keyboard and count the number of times a particular word occurs in it. Display the frequency of search word.

Example : Bandwidth is the amount of data that can be transmitted in a fixed amount of time.

Enter a word to be searched : **of**

Output: Searched word occurs 2 times



Q8. Two single dimension arrays contains the elements as follows:

X[10] = 5,-3,-2,1,50,12,14,16,25,13

Y[8]= 6,5,10,15,18,20,22,30

Write a program that results a third array z as follows:

Z[18]=5,6,-3,5,-2,10,1,15,0,18,12,20,14,22,16,30,25,13

Q9. Write a program to accept height(in cms) of 15 students. Perform selection sort and print them in ascending order.

Q10. Define a class employee having the following description:

Data members	long aadhar	to store the aadhar number.
	String pan	to store pan number

Instance variable	String name	to store name
	double taxincome	to store annual taxable income
	double tax	to store tax that is calculated

Member functions :

input()	store the aadhar number, pan number, name, taxable income
calc()	calculate tax of the employee
display()	output details of the employee

Write a program to compute the tax according to the given conditions and display the output as per given format.

Total annual Taxable Income	Tax Rate
Upto 2,50,000	Nil
2,50,001 to 5,00,000	5% of total income exceeding 2,50,000
5,00,001 to 10,00,000	12,500 + 20% of total income exceeding 5,00,000
Above 10,00,000	1,12,500 +30% of total income exceeding 10,00,000