DELHI PUBLIC SCHOOL NEWTOWN
SESSION: 2021-2022
HALF YEARLY EXAMINATION (ONLINE)

CLASS: IX **FULL MARKS: 60**
SUBJECT: COMPUTER APPLICATIONS **TIME: 1 Hour 30 minutes**

Instructions:

- **Answer any four questions.**
- **This paper consists of three printed pages.**
- **VDT should be written for every program.**

Question 1 **[15]**

Create a class *Tax_calculation* as given

Class Name : Tax_calculation

Data Members/ Variables : name, age, monthly_salary, phone_no, address, annual_income

Member Functions/ Methods:

a) void accept( ) :accepting the required data members.

b) void calculate( ) :to calculate the income tax of the employee based on the following condition:

Annual income (in □)	Tax
Up to 130000	No tax
Between 130000 – 200000	15% of the annual_income
From 200000 – 250000	□ 5000 + 20% of the annual_income
From 250000- 330000	□ 10000 + 30% of the annual_income
Above 330000	□ 10000 + 35% of the annual_income

c) void print( ) :to display all the details of the employee with annual income and income tax in a tabular format.

Create the above class and implement all the functions. Write the main( ) method to create object and call the functions.

Question 2 **[15]**

Write a program to input a set of numbers (*n numbers*), include both positive and negative numbers. Perform the following tasks:

a) **Count the positive numbers**
b) **Count the negative numbers**
c) **Count the prime numbers**
d) **Sum of positive numbers**
e) **Sum of negative numbers**

The program should terminate when the user enters digit 0.

Question 3 **[15]**

Write a menu-driven program to calculate and display the following:

(take necessary inputs wherever required):

a) **Tribonacci Series: Display tribonacci series upto n terms. A tribonacci series is aseries whose every 4th term is the sum of 1st, 2nd and the 3rd number.**
Eg: 0,1,1,2,4,7,13…..n terms.

b) **Prime Factors: Display prime factors of a number taken as input by user. The prime factors of a number are all of the prime numbers that will exactly divide the given number.**
Eg: 12=2 *2*3, 16=2*2*2*2

Question 4 **[15]**

Mr. Kunal offers discount to his policy holders on the premium amount. However, he also gets commission on the sum assured as per the given tariff.

Sum assured	Discount	Commission
Up to □ 1,00,000	5%	2%
□ 1,00,001 and up to □ 2,00,000	8%	3%
□ 2,00,001 and up to □ 5,00,000	10%	5%
More than □ 5,00,000	15%	7.5%

Write a program to input name of the policy holder, the sum assured and premium amount. Calculate the discount of the policy holder and the commission of the agent. The program displays all the details as:

Name of the policy holder: …….

Sum Assured: …….

Premium amount: …….

Discount on the premium: ……

Commission of the agent: ……..

Question 5 **[15]**

a) **Write a program to accept any two numbers and print the GCD of them. The GCD (Greatest Common Divisor) of two integers is calculated by continued division method. Divide the larger number by the smaller, the remainder then divides the previous divisor. The process is repeated till the remainder is zero. The divisor then results the GCD.**
   Sample Input: 25 and 35
   Sample Output: GCD of the numbers 25 and 35 is 5.

b. **Perfect Number : A number is said to be perfect number if sum of its all factors (excluding itself) is same as the original number. Eg: 6= 1+2+3, 28- 1+2+4+7+14**