COMPUTER APPLICATIONS ASSIGNMENT

Question 1. Write a program which will input the number of calls made and find the telephone bill according to following rates.

UNITS CONSUMED   BILL AMOUNT
Upto 100 calls   Rental of Rs. 500 only
Next 200 calls   Additional Rs.1.50 per call
Next 200 calls   Additional Rs.2.00 per call
Rest Additional   Rs.2.50 per call

Question 2. Write a program to input the values a,b,c for a quadratic equation $ax^2 + bx+c$. Find the value of d and accordingly comment on the nature of its roots and find the roots of the quadratic equation.

Question 3. Write a program to input three angles, Check whether they form a triangle or not. If triangle is formed check whether it is an acute angled, right angled or obtuse angled triangle.

Question 4. Write a program to input three sides, Check whether they form a triangle or not. If triangle is formed check whether it is an equilateral, isosceles or scalene triangle.

Question 5. Write a program to input two numbers and find their LCM and HCF.

Question 6. Write a program to input a number and print all its prime factors.

Question 7. Write a program which will input a number and check whether it is a special number or not. A number is said to be special if the sum of the factorials of the digits is equal to the original number Example : 145= 1! + 4 ! + 5 ! =1+24+120=145

Question 8. Write a program which will ask the user to input a choice ch and the height of the triangle h and print either of the following patterns based on the user's selection.
Ch=1 h=4 output :
1
12
123
1234
Ch=2 h=5
output : 12345
1234
123
12
1

Question 9: Write a program to perform the following
(a) To print the series 2, 5, 10, 17, 26 …... upto n terms (value of 'n' is to be an input by the user).
(b) To find the sum of the series given: S = 1/2 + 3/4 + 5/6 + 7/8+ ....+ 19/20.

Question 10: Using the switch statement, write a menu driven program to:
(i) Generate and display the first n elements of the Fibonacci series
0,1,1,2,3,5,8,13,21…….
(ii) Input a number and check whether it is an automorphic number or not.
An automorphic number is a number which is present in the last digit(s) of its square.
Example:25 is an automorphic number as its square is 625 and 25 is present as the last digits
For an incorrect choice, appropriate error message should be displayed.

Question 11 : WAP which will input two number and check if it is a twin prime number or not.
(e.g. 3,5)

Question 12: The charges of metro train is as follow:

AGE GROUP	COST OF TICKET/PASSENGER
18 or above	Rs. 20
5 to 17	Rs. 12
Below 5	NIL

WAP which will input age of N number of people and print the total charge. The program
should also state the number of people of of different age group and total amount collected.

Question 13: Design a class to overload a function calculate ( ) as follows:
- (a) void calculate (int a, int b,char ch)– to find the sum of x and y if ch is 's'
  otherwise find their average.
- (b) void calculate(char ch1, char ch2) – to print the difference between the ASCII
  codes of the two characters.
- (c) void calculate (String s)– to print the letters of s in separate lines:

Question 14: Write a program to input a word and convert it to its PigLatin form.

Question 15: Write a program to input a word and reprint after arranging it alphabetically.

Question 16: Write a program to input a name and display it in bibliography form

Question 17 : Write a program to input a sentence. Develop a menu based upon which print:
  (i)Word formed by combing first letters of each word.
  (ii)Word formed by combing last letters of each word.

Question 18 :.Write a program to input a name and check whether it is a unique name or not. A
name is said to be unique in which the letters do not repeat.

Question 19: Using the switch statement, write a menu driven program to: (i) Input a sentence
and count the number of vowels present in it (ii) Input a word and check if it is a palindrome or
not A palindrome is a word which is same even after reversing the letters of the word. Eg.
MADAM, NITIN

Question 20: Write a program which will input a sentence and display the number of
        1. Upper Case Letters
        2. Lower Case Letters
        3. Digits
        4. Blank Space
        5. Special Characters

Question 21: Write a program to input ten numbers each in two different arrays and find the sum of the two arrays.

Question 22: Write a program that asks the user to enter an integer (N). Create a single-dimensional array of N double values. Ask the user to enter the N double values to populate this array. Sort this array in reverse (descending) order using the Bubble sort method, and print the same on a single line, each element separated by a space

Question 23: The annual examination results of 50 students in a class is tabulated as follows.

Roll no.	Subject A	Subject B	Subject C
………	………	………	………

Write a program to read the data, calculate and display the following:
a) Average mark obtained by each student.
b) Print the roll number and average marks of the students whose average mark is above 80.
c) Print the roll number and average marks of the students whose average mark is below 40.

Question 24: Write a program to input the names of ten states and their capitals in two different arrays. Input the name of a state and check whether the state is present or not. If state is present print the state along with the capital else print appropriate message.

Question 25: Write a program to input 10 numbers in a Single Dimension array. Using Bubble Sort Technique Arrange the elements in ascending order. Input a number and using Binary Search Technique check whether the number is present in the array or not.

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Dear Students of Class X : Kindly make the above programs in your
                      Practical Note Book.

Take Care of the following :
1. **Question No. 1-13 has to be completed during the Summer Vacation.**
2. **Programs should be written in clear handwriting**
3. **Programs must be accompanied with variable description table**
4. **You must write the output .**
5. **Index should be maintained.**
6. **Check the Program for any errors.**
7. **The Completed Practical copy will be submitted on the day of the Practical Examination.**