ASSIGNMENT_2

Console I/O and Conditional Statements

(Any Ten assignments)

1. Write a C program that reads two values from the keyboard, swaps their values and prints out the result.

2. The length and breadth of a rectangle and radius of a circle are input through the keyboard. Write a program to calculate the area and perimeter of the rectangle, and the area and circumference of the circle.

3. If a three-digit integer is input through the keyboard, write a program to calculate the sum of its digits. (Hint: Use the modulo operator '%')

4. An integer is entered as an input through the keyboard. Write a program to find out whether it is an odd number or an even number.

5. Input two integer numbers and divide the larger number by the smaller one. Then display the result using printf() function as a fractional number first and then as a real valued number. (Example: 9 divided by 5 shall yield " 4/5" and "1.8" respectively.)

6. Write a C program to find the maximum and minimum of three numbers.

7. Accept three integer numbers and find their average. Next display which numbers are below and above the average value.

8. Temperature of a city in Fahrenheit degrees is input through the keyboard. Write a program to convert this temperature into Centigrade degrees.

9. Write a C program which accepts basic salary as input and prints the gross salary, which is sum of the basic, dearness allowance (60% of basic salary), and house rent allowance (15% of basic salary).

10. A cashier has currency notes of denominations 10, 50 and 100. Write a C program which accepts an amount to be withdrawn, and prints the total number of currency notes of each denomination the cashier will have to give to the withdrawer. **[OPTIONAL]**

11. If the marks obtained by a student in five different subjects are input through the keyboard, find out the aggregate marks and percentage marks obtained by the student. Assume that the maximum marks that can be obtained by a student in each subject is 100. Input error should be checked. **[OPTIONAL]**

12. The length and breadth of a rectangle are input through the keyboard. Write a programme to determine (i) radius of a circle and ratio of perimeters of the rectangle and the circle if the areas of the rectangle and the circle are equal (ii) radius of the circle and the ratio of the areas of the rectangle and the circle if the perimeters of the rectangle and the circle are equal. **[OPTIONAL]**

13. In a town, the percentage of men is 52. The percentage of total literacy is 48. If total percentage of literate men is 35 of the total population, write a program to find the total number of illiterate men and women if the population of the town is 80,000. **[OPTIONAL]**

ASSIGNMENT_2

14. If a five-digit integer is input through the keyboard, write a program to print a new number by adding one to each of its digits. For example if the number that is input is 12391 then the output should be displayed as 23402. **[OPTIONAL]**

15. Write a program to find the grace marks for a student using switch. The user should enter the class obtained by the student and the number of subjects he has failed in.

    - If the student gets first class and the number of subjects he failed in is greater than 3, then he does not get any grace. If the number of subjects he failed in is less than or equal to 3 then the grace is of 5 marks per subject.

    - If the student gets second class and the number of subjects he failed in is greater than 2, then he does not get any grace. If the number of subjects he failed in is less than or equal to 2 then the grace is of 4 marks per subject.

    - If the student gets third class and the number of subjects he failed in is greater than 1, then he does not get any grace. If the number of subjects he failed in is equal to 1 then the grace is of 5 marks per subject.   **[OPTIONAL]**

16. Read a five-letter word into the computer, then encode the word on a letter-by-letter basis by subtracting 30 from the numerical value that is used to represent each letter. Thus if the ASCII character set is being used, the letter a (which is represented by the value 97)would become a C (represented by the value 67),etc. Write out the encoded version of the word. **[OPTIONAL]**

17. Read into the computer a five-letter word that has been encoded using the scheme described above. Decode the word by reversing the above procedure, then write out the decoded word. **[OPTIONAL]**

18. Any year is input through the keyboard. Write a program to determine whether the year is a leap year or not. (Hint: Use the % (modulus) operator)

19. Write a program to check whether a triangle is valid or not, when (i) the three angles of the triangle are entered through the Keyboard (ii) three sides of the triangle are entered through the keyboard. **[OPTIONAL]**

20. Given three points (x1, y1), (x2, y2) and (x3, y3), write a program to check if all the three points fall on one straight line. **[OPTIONAL]**

21. Given the coordinates (x, y) of a center of a circle and its radius, write a program which will determine whether a point lies inside the circle, on the circle or outside the circle. (Hint: #include <math.h>. Use sqrt( ) and pow( ) functions)

22. Any character is entered through the keyboard, write a program to determine whether the character entered is a capital letter, a small case letter, a digit or a special symbol.

23. Given as input an integer number of seconds, write a program to print as output the equivalent time in hours, minutes and seconds. Recommended output format is something like 7322 seconds is equivalent to 2 hours 2 minutes 2 seconds.

ASSIGNMENT_2

24. Write a program which accepts two number X, Y and creates a third number Z by appending Y after X. Example: if X=12 and Y=345 then Z=12345. **[OPTIONAL]**

25. A certain grade of steel is graded according to the following conditions:

    Hardness must be greater than 50

    Carbon content must be less than 0.7

    Tensile strength must be greater than 5600

    The grades are as follows:

    Grade is 10 if all three conditions are met

    Grade is 9 if conditions (i) and (ii) are met

    Grade is 8 if conditions (ii) and (iii) are met

    Grade is 7 if conditions (i) and (iii) are met

    Grade is 6 if only one condition is met

    Grade is 5 if none of the conditions are met

    Write a program, which will require the user to give values of hardness, carbon content and tensile strength of the steel under consideration and output the grade of the steel. **[OPTIONAL]**