C – PROGRAMMING LABORATORY

Practicals   :   3   periods / week   Sessional Marks   :   40

Semester End Exam Marks   :   60

Semester End Exam   :   3 hrs   Credits   :   **2**

Course Objectives:
- Understand the ANSI C/Turbo C compilers.
- Be able to develop various menu driven programs using conditional and control flow statements.
- Be able to effectively use the arrays, strings and pointers in programming.
- Develop programs using structures, unions and files.
- Develop 'C' programs for various applications.
- Be able to participate and succeed in competitive examinations.

Course Outcomes:
- The understanding ANSI C/ Turbo C compilers.
- The ability to develop various menu driven programs like generation of electricity bill, evaluation of series etc.
- The ability to develop menu driven for displaying various statistical parameters.
- The practical knowledge to write C programs using 1D, 2D and Multi Dimensional arrays.
- Skills to develop various programs on strings and pointers.
- Able to write C programs to develop various applications using structures, unions and Files.
- Thorough practical knowledge to develop 'C' programs for various applications.
- The capability to participate and succeed in competitive examinations.

List of programs (to be recorded)

1.   A program for electricity bill taking different categories of users, different slabs in each category. (Using nested if else statement or Switch statement).

Domestic level Consumption As follows:	
Consumption Units	**Rate of Charges(Rs.)**
0 – 200	0.50 per unit
201 – 400	100 plus 0.65 per unit
401 – 600	230 plus 0.80 per unit
601 and above	390 plus 1.00 per unit
Street level Consumption As follows:	
Consumption Units	**Rate of Charges(Rs.)**
0 – 50	0.50 per unit
100 – 200	50 plus 0.6 per unit
201 – 300	100 plus 0.70 per unit
301 and above	200 plus 1.00 per unit

2. Write a C program to evaluate the following (using loops):
   a. $1 + x^2/2! + x^4/4! +$ upto ten terms
   b. $x + x^3/3! + x^5/5! +$ upto 7 digit accuracy
   c. $1 + x + x^2/2! + x^3/3! + \ldots\ldots$ upto n terms
   d. Sum of $1 + 2 + 3 + \ldots\ldots\ldots\ldots + n$

3. A menu driven program to check the number is (using Loops):
   i) Prime or not
   ii) Perfect or Abundant or deficient
   iii) Armstrong or not
   iv) Strong or not

4. A menu driven program to display statistical parameters (using one – dimensional array)
   i) Mean   ii) Median   iii) Variance   iv) Standard deviation

5. A menu driven program with options (**using one -Dimensional array)**
   (i) To insert an element into array
   (ii) To delete an element
   (iii) To print elements
   (iv) To remove duplicates

6. A menu driven program with options (using two dimensional array)
   (i) To compute A+B
   (ii) To compute A x B
   (iii) To find transpose of matrix A
   Where A and B are matrices. Conditions related to size to be tested

7. A menu driven program with options (using Two-dimensional Character arrays)
   (i) To insert a student name
   (ii) To delete a name
   (iii) To sort names in alphabetical order
   (iv) To print list of names

8. A menu driven program (using pointers)
   a. Linear search   b. Binary search

9. A menu driven program with options (**using Dynamic memory allocation**)
   a. Bubble sort   b. Insertion sort

10. A menu driven program with options (**using Character array of pointers**)
    (i) To insert a student name

(ii)   To delete a name

(iii)   To sort names in alphabetical order

(iv)   To print list of names

11.   Write a program to perform the following operations on Complex numbers (**using Structures & pointers):**

    i)   Read a Complex number

    ii)   Addition of two Rational numbers

    iii)   Subtraction of two Complex numbers

    iv)   Multiplication of two Complex numbers

    v)   Display a Complex number

12. a)   Write a C program To copy the one file contents to the another file (**using command line arguments).**

    b)   Write a C Program to count the frequencies of words in a given file.

TEXT BOOK:

1.   Programming with C (Schaum's Outlines) by Byron Gottfried, Tata Mcgraw-Hill, 2010.

2.   Programming with C by K R Venugopal & Sudeep R Prasad, TMH., 1997

REFERENCE BOOKS:

1.   Programming in C by Pradip Dey and Manas Ghosh ,Second Edition,OXFORD

2.   'C' Programming by K.Balaguruswamy, BPB.

3.   C Complete Reference, Herbert Sheildt, TMH., 2000

WEB REFERENCES:

a.   http://cprogramminglanguage.net/

b.   http://lectures-c.blogspot.com/

c.   http://www.coronadoenterprises.com/tutorials/c/c_intro.htm

d.   http://www.cprogramming.com/tutorial/c/lesson1.html

http://vfu.bg/en/e-Learning/Computer-Basics--computer_basics2.pdf