Lesson : 08   USE of `input, fprintf` and `sscanf` IN MATLAB

Date   :

Aim

    To learn the use of input-output commands such as `input, fprintf` and `sscanf` in MATLAB

General

1. `'%d'` Prints a decimal integer in its position
2. `'%o'` converts a decimal array into octal array before printing on screen
3. `'%x'` converts a decimal array into hex array before printing on the screen
4. `'%f'` converts the integers into floating point and prints
5. `'%g'` gives the output in integer or floating point of scientific notation
6. `'%c'` can be used to print a character or a character array

Exercises

1.   use of `fprintf` in a simple interest program
2.   use of `input` and `fprintf` in a simple interest program
3.   use of `sscanf` function

Result

Thus we learned the use of some of the I/O (input-output) commands with the help of exercises in MATLAB environment.

Lesson : 09   **THE CONDITIONAL CONTROL STATEMENTS**

Date   :

Aim

        To learn the use of conditional control statements in writing a MATLAB program.

Exercises

    1. use of if statement
    2. use of if-elseif-end statement
    3. use of if-elseif-elseif………else-end statement
    4. use of for loop
    5. use of while loop
    6. use of nested if else

Result

Thus we learned the use of some of the important conditional control statements in MATLAB with the help of few examples. The screen-shots of the exercises performed are also presented.

PART II   **NUMERICAL ANALYSIS**

Lesson : 10   **FINDING ROOTS OF A POLYNOMIAL**

Date   :

Aim

To find the roots of a polynomial of order 5, 4 and 2 using MATLAB.

Exercises

1. Find the roots of the polynomial of order 5
2. Find the roots of the polynomial of order 4
3. Find the roots of the polynomial of order 2 (or quadratic equation)

Result

   Thus the roots of given polynomial of order 5, 4 and 2 were computed using MATLAB as shown in the screen-shot.

Lesson : 11   **MATRICES – MATRIX OPERATIONS**

Date   :

Aim

      To learn the some of the Matrix Operations such as Addition of a Matrix, Transpose of a matrix, Determinants, Cramer's rule, Eigen value and Eigen vectors.

Exercises

1. Compute addition and subtraction of matrix
2. Obtaining transpose of a matrix
3. Compute determinants
4. Use of Cramer's rule
5. Finding solution to simultaneous equations through matrix
6. Finding Eigen values and Eigen vectors

Result

Thus we learned some of the matrix operations using MATLAB with few examples as shown in the screen-shot.

Lesson : 12   **ORDINARY DIFFERENTIAL EQUATIONS**

Date   :

Aim

To learn ordinary differential equation (ODE) Using MATLAB.

Exercises

1. Solving a first order ordinary differential equation with initial conditions.

Result

Thus we learned the use of MATLAB in finding the solution to first order differential equation with initial boundary conditions.

Lesson : 13   **SOLUTION TO TRANSCENDENTAL EQUATIONS**

Date   :

Aim

To solve the transcendental equation using MATLAB

Exercises

1. Solving a non linear algebraic equation (Transcendental equations)

Lesson : 14   **POLYNOMIAL CURVE FITTING**

Date   :

Aim

To learn the curve fitting techniques using MATLAB

Exercises

1. Polynomial curve fitting – Linear, Quadratic and Cubic

Result

Thus we performed the curve fitting techniques for the given data using MATLAB.

Lesson : 15   **NUMERICAL INTEGRATION**

Date   :

Aim

        To find a solution for the given integral equation by Trapezoidal and Simpson's rule using MATLAB.

Result

Thus the given transcendental equation can be solved using MATLAB as shown in the screen shots.