

ELE 4303 MATLAB for Engineers (OE 1)

MID TERM EXAMINATION

Date : 29-Oct-2024

Marks : 30

Questions 1 to 10 carries ½ M each.

1. The MATLAB command that lists all the MATLAB script files in a given folder is

- A) list = ls('*.m') B) list = ls('*MATLAB*') C) list = ls('*.doc') D) list = ls('*.txt')

2. In MATLAB, _____ gives the 'Number of function input arguments'.

- A) nargin B) nargsout C) varargin D) varargout

3. The command to terminate/quit/exit MATLAB

- A) Either Quit or Exit B) Quit C) Exit D) Ctrl + C

4. The output of the command a=1+1:5 in MATLAB

- A) 2 3 4 5 6 B) 2 3 4 5 C) 1 2 3 4 5 D) 5 4 3 2 1

5) The command that returns the total number of elements in a matrix

- A) numel B) length C) size D) count

6) In symbolic computation, for the function $f=(x+2)^3$, which of the following command gives the output as : $x^3 + 6x^2 + 12x + 8$

- A) simplify(f) B) factor(f) C) expand(f) D) solve(f)

7) What is the output of the following symbolic code : `>> syms f(x,y); f(x,y) = x^2*y; f(3,2)`

- A) 6 B) 9 C) 18 D) 5

8) What is the outcome of the command **rem(40, 12)**?

- A) 4 B) -4 C) 3.33 D) 3

9) _____ divides the current figure into an **m-by-n** grid and creates axes in the position specified by **p**.

- A) subplot(p,m,n) B) subplot(m,n,p) C) plot(m,n,p) D) plot(p,m,n)

10) Which command is used to clear a command window?

- A) clear B) close all C) clc D) clear all

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- 11) List any TWO toolboxes of MATLAB. (2M)
- 12) What would be the output of the following code (in editor window)? (2M)
`>> A = [0 1; 1 0] ; B=2 ; C = A + B`
- 13) List any TWO tools/components of Development Environment (GUI). (2M)
- 14) Variable T ranges from 0 to 2π , write a MATLAB code to plot the sine and cosine values of T in the same plot. (3M)
- 15) Differentiate between Iterative and recursive algorithms. Which is Better? (3M)
- 16) Example of solving linear equations in MATLAB is given below:
`syms x y z`
`eqn1 = 2*x + y + z == 2;`
`eqn2 = -x + y - z == 3;`
`eqn3 = x + 2*y + 3*z == -10;`
`[x y z]=solve(eqn1, eqn2, eqn3);`
- In the similar way write MATLAB code to solve :
- The ratio of two number is $2/3$. If 2 is subtracted from the first and 8 from the second, the ratio becomes the reciprocal of the original ratio. Find the numbers. (3M)
- 17) What are the rules to be followed while naming VARIABLES, FILES, and FUNCTIONS in MATLAB (3M)
- 18) Write a MATLAB code to evaluate the polynomial $g(x) = -x^5 + 3x^3 - 2.5x^2 - 2.5$ over the interval $[0,1]$ (3M)
- 19) List any FOUR applications of MATLAB in your field of engineering. (4M)