

Code: EE6T6FE-E,CS6T5FE-C,ME6T6FE-F

III B.Tech-II Semester–Regular/Supplementary Examinations–March 2019**INTRODUCTION TO MATLAB
(Common for EEE,CSE & ME)**

Duration: 3 hours

Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

$$11 \times 2 = 22 \text{ M}$$

1.

- a) What is Matlab and what are its uses?
- b) Give the Commands for Input and Output for Matlab.
- c) Mention some of arithmetic operations.
- d) How to address an array using colon: , give example.
- e) Give the differences between Mesh plots and Surface plots.
- f) Define Interpolation.
- g) What is the use of nested functions?
- h) How to create a function file and structure of a function file?
- i) Specify the line styles, colours and markers using plot command.
- j) List the four basic functions to solve ordinary differential equations.
- k) Write a function to return the determinant of 2 X 2 matrix.

PART – B

Answer any *THREE* questions. All questions carry equal marks.

$$3 \times 16 = 48 \text{ M}$$

2. a) A Vector can be represented by rectangular coordinates x & y or by its polar coordinates r & θ . The relationship between them is given by the equations

$$x = r * \cos(\theta) \quad y = r * \sin(\theta)$$

Assign values for the polar coordinates to variable r and θ then, using these values, assign the corresponding rectangular coordinates to variable x and y. 8 M

- b) Find MATLAB expressions for the following.

(i) $\sqrt{19}$ (ii) $3^{1.2}$ (iii) $\tan(\pi)$ 8 M

3. a) Using the colon operator and the transpose operator create a column vector that has the values -1 to 1 in steps of 0.2

$$8 \text{ M}$$

- b) Generate a 2 X 3 matrix of random

- Real numbers, each in the range from 0 to 1.
- Integers each in the range from 5 to 20. 8 M

4. a) Use subplot to show the difference between the Sin and Cos functions. Create an X vector with 100 linearly spaced points in the range from -2π to 2π and then two Y vectors for Sin (X) and Cos (X). in a 2 X 1 subplot, use the plot function to display them, with appropriate titles. 10 M

b) Explain how the properties of the plot can be modified by taking a example. 6 M

5. a) Write a function file that converts temperature in degrees Fahrenheit ($^{\circ}\text{F}$) to degrees centigrade ($^{\circ}\text{C}$). use input and fprintf commands to display a mix of text and numbers. Recall the conversion formulation, $\text{C} = \frac{5}{9} * (\text{F}-32)$

10 M

b) Describe relational and logical operators. 6 M

6. a) Use MATLAB to carry out the following multiplication of polynomials :

$(x + 1.4)(x - 0.4)x(x + 0.6)(x - 1.4)$ plot the polynomial for $-1.5 \leq x \leq 1.5$ 8 M

b) Determine the solution of the equation $e^{0.5x} - \sqrt{x} = 3$. 8 M