

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

**III B.Tech-II Semester–Regular/Supplementary Examinations
March 2020**

**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

11x 2 = 22 M

1.

- a) Describe Anatomy of M-file function.
- b) State the process to pre-allocate a non-double matrix.
- c) What is the use of nested functions?
- d) Write an expression for the sum of the squares of the numbers from 1 to 10.
- e) How to Execute a polar plot using Matlab?
- f) Illustrate an example to create multiple graphs with a single call to plot.
- g) How to plot three-dimensional structures in Matlab?
- h) What are local and global operators?
- i) Differentiate between Scripts and Functions.
- j) Write a programme to find the polynomial $6x^3 + 3x + 1$ at $x=9$.
- k) What is meant by Curve fitting?

PART – B

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

3 x 16 = 48 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 variables x and y . 8 M

- b) Explain the different Arithmetic operators used in MATLAB with examples. 8 M

3. 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, $C = 5/9 * (F - 32)$. 8 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) Create a data file that has 10 numbers in it. Write a script that will load the vector from the file, and use subplot to do an area plot and a stem plot with this data in the same figure window. 10 M

b) Give the names for graphic systems used in Matlab. 6 M

5. a) Write a user-defined MATLAB function for the following math function.

$$y(x) = 3x^5 - 0.2x^4 + e^{-0.5x}x^3 + 7x^2 + 2x.$$

the input to the function is x and the output is y. Write the function such that x can be a vector (use element-by-element operations). Use the function to calculate y(-2.5), and y(3). 10 M

b) Describe relational and logical operators. 6 M

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

$(P + 1.4)(P - 0.4)3P(P + 0.6)(P - 1.4)$ plot the polynomial for $-2.5 \leq P \leq 2.5$. 8 M

b) Determine the positive roots of the equation

$$x^2 - 5x \sin(3x) + 3 = 0. \quad 8 M$$