

**B.Tech IV Year I Semester Regular Examinations February-2024**  
**MATLAB PROGRAMMING**  
(Open Elective – IV)**Time: 3 Hours****Max. Marks: 60**

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 a Demonstrate the process of solving a system of linear equations using MATLAB, providing a step-by-step guide along with an example. CO1 L3 6M
- b Explain the purpose and functionality of input and output commands in MATLAB, and describe how they facilitate interaction with users and data. CO1 L2 6M

**OR**

- 2 a Identify and define the menus and toolbars available in MATLAB. CO1 L2 6M
- b Calculate and display the first 10 numbers of the Fibonacci series using MATLAB. CO1 L3 6M

**UNIT-II**

- 3 Explain the concept of array addressing in MATLAB and how it enables access to individual elements within arrays or matrices. CO2 L2 12M
- 4 List and define the functions in MATLAB used for sorting, rotating, permuting, reshaping, shifting array contents, and circularly shifting array contents. CO2 L2 12M

**UNIT-III**

- 5 a Define the concept of functions in programming and their role in modularizing code. CO3 L2 6M
- b Demonstrate the creation and usage of different MATLAB file types through examples, illustrating how each type contributes to MATLAB programming and data analysis workflows. CO3 L2 6M

**OR**

- 6 a Write a MATLAB function called **fahrenheit\_to\_celsius** that accepts temperature in degrees Fahrenheit as input and computes the corresponding temperature in degrees Celsius using the provided formula. CO3 L3 6M
- b Explain how nested functions work within MATLAB, including their scope and relationship with the parent function. CO3 L2 6M

**UNIT-IV**

- 7 a Recall the basic methods used for calling functions in programming. CO4 L2 6M
- b Explain the concepts of exponential and logarithmic functions, including their properties, graphical representations, and relationships. CO5 L2 6M

**OR**

- 8 Explain the purpose and syntax of different types of conditional statements in MATLAB. CO4 L2 12M

**UNIT-V**

- 9 a Explain the process of obtaining the Reduced Row Echelon Form of a matrix through row operations, and describe its characteristics. CO6 L2 6M
- b Apply the matrix inverse method to solve the given system of linear equations: CO6 L3 6M

$$2x_1 + 9x_2 = 5$$

$$3x_1 - 4x_2 = 7$$

**OR**

- 10 Explain the theoretical techniques in linear algebra used for solving systems of linear equations and matrix operations. CO6 L2 12M

