

June : 2026

MATHEMATICS

Paper: SEC-MTH-201

COMPUTER LABORATORY-II

Time: 2 Hours

Total Mark: 45

(The figures in the right margin indicate full marks of the questions)

1. a) Which panel in the MATLAB desktop allows to enter commands at the >> prompt? 1
- b) Explain variable assignment in MATLAB with an example. 2
- c) Write the commands that is used to evaluate real part and magnitude of the complex number $z = 5+4i$ in MATLAB. 2
- d) Explain why MATLAB is called matrix laboratory? Explain the MATLAB desktop environment with it's various components. 2+4=6

Or

Describe numerical expressions, character strings, and relational expressions in MATLAB. 2+2+2=6

2. a) Write the MATLAB command to find the inverse of a matrix. 1
- b) Discuss vectors and matrices in MATLAB. Explain matrix addition and subtraction with examples. 4
- c) Using Matlab commands create matrix of order 3×3 , multiply each element by 2 and extract 1st row 3rd column's elements from it. 3

3. a) Define a 2D plot. 1
- b) Explain the term a) Algorithm and b) Matlab scripts. 2+2=4
- c) Discuss plotting of graphs in MATLAB. Explain the commands used for 2D and 3D plots. 4

Or

Plot the surface $z = x^2 - y^2$, using mesh grid and surf command (with proper labeling). 4

4. a) Write which statement is used for decision making in MATLAB. 1
- b) Explain the **if**, **if-else**, and **nested if** statements in MATLAB with examples. 5
- c) Discuss **for** loops and **while** loops in MATLAB with suitable programs. 5

Or

Write a MATLAB program using nested loops to display a multiplication table. 5

5. a) Write MATLAB commands to integrate x^2 . 1
 - b) Solve the following algebraic equations using Matlab commands 5
- $$x^2 - 7x + 10 = 0$$
- $$x^3 - x - 2 = 0.$$

Or

Explain the method of solving systems of equations in MATLAB with examples. 5
