

M.Sc. (Mathematics) (CBCS / NEW CBCS Pattern) Sem-III
PSCMTH15 (C) / PSCMTH15-3 : MATLAB Programming

P. Pages : 2

Time : Three Hours



GUG/W/22/13765

Max. Marks : 100

- Notes : 1. Solve **all five** questions.
2. All questions carry equal marks.

UNIT – I

1. a) Explain the file types in MATLAB. **10**
b) Write down program and explain the steps involved in creation, saving and execution of a function file to find sum of first n natural numbers. **10**

OR

- c) Explain features of all forms of input-output in MATLAB. **10**
d) Write down steps involved in creation, saving and execution of a script file in MATLAB. **10**

UNIT – II

2. a) Write a note on matrix manipulation in MATLAB. **10**
b) Write a note on arithmetic and array operations on matrices in MATLAB. **10**

OR

- c) Write a note on how report is generated using MATLAB publisher. **10**
d) What are global variables in MATLAB write a MATLAB program involving global variables. **10**

UNIT – III

3. a) Write a note on matrix factorization in MATLAB. **10**
b) Write a note on finding solution of linear equations in MATLAB. **10**

OR

- c) Explain interpolation in MATLAB. **10**
d) Write a note on curve fitting in MATLAB. Explain the steps involved to get the best linear. **10**
x : 3, 8, 14, 25 & y: 9, 63, 201, 410

UNIT – IV

4. a) Explain Mesh plot in MATLAB. **10**
- b) Solve the equation of motion of a nonlinear pendulum $\ddot{\theta} + w^2 \sin \theta = 0$ with the initial conditions $\theta(0) = 1, \dot{\theta} = 0$. **10**

OR

- c) Write a note on axis control in plot generation in MATLAB. **10**
- d) Write a note on roots of polynomials. Write a MATLAB program to find roots of the polynomial equation $x^7 - 14x^5 + 7x^4 - 3x^2 + 19 = 0$. **10**
5. a) Write down the MATLAB commands to **5**
- i) See the contents of a directory.
 - ii) Create a new directory and change the current directory.
 - iii) Copy a file from one directory to another.
- b) Write a note on relational operators in MATLAB. **5**
- c) Write a note on general non-linear fits in MATLAB. **5**
- d) Write a short note on labels and title in MATLAB. **5**
