(6 pages)

S.No. 6882 **P 22 MAVAC 1 B**

(For candidates admitted from 2022–2023 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Mathematics — Value Added Course

INTRODUCTION TO MATLAB

Time : Three hours Maximum : 75 marks

SECTION A — (20 marks)

Answer ALL questions.

I. (A) Multiple choice questions: (5 × 1 = 5).

1. Which shortcut is used to clear the command window?

(a) clc (b) clscr()

(c) clc() (d) clear all()

2. A ———— is a list of numbers arranged in a row or a coloumn.

(a) list

(b) function

(c) multi-dimensional array

(d) one dimensional array

3. ———— is used to solve the matrix equation $AX = B$ in MATLAB

(a) \ (b) /

(c) . (d) none of these

4. The command used to display output on the screen ————

(a) print( ) (b) fprintf

(c) printscr( ) (d) none

5. The ———— command plots a function with the specified given form between given limits.

(a) plotf( ) (b) fplot

(c) plotfunction (d) none of these

(B) Fill in the blanks: (5 × 1 = 5)

6. The built-in function format loose is used to ————

7. All variables in MATLAB are ————

8. The function used to calculate the mean of a vector A ————

9. ———— command that displays a list of variables currently in the workspace and information about their size, bytes and class.

10. The ———— command is used to create two dimensional plots.

II. Answer ALL questions: (5 × 2 = 10)

11. Write down any two elementary math built-in functions used in MATLAB with description and an example.

12. What is one and two dimensional array in MATLAB explain it with an example?

13. Write any two functions of randi command with example.

14. Explain in short about the disp command with an example.

15. Explain line command in short.

SECTION B — (5 × 5 = 25)

Answer ALL questions, choosing either (a) or (b).

16. (a) Describe briefly about the assignment operator in MATLAB with syntax and various examples and write down any four display format of numbers used in MATLAB.

Or

(b) Briefly explain about the working procedure in command window and various shortcuts used there.

17. (a) Write about addressing arrays using colon (:) for a matrix with required examples.

Or

(b) Write down any five built-in functions for handling arrays with its description and examples.

18. (a) Explain about array multiplication and division in MATLAB.

Or

(b) Write the MATLAB program required to solve the given equation below and derive the output.

$4x - 2y + 6z = 8$

$2x + 8y + 2z = 4$

$6x + 10y + 3z = 0$

19. (a) Explain the process of using the fprintf command to display a mix of tex and numerical data with required examples.

Or

(b) Explain about save and load command with required examples.

20. (a) Write down the MATLAB program to plot the function $y = 3x^3 - 26x + 10$ and its first and second derivatives for $2 \leq x \leq 4$ in the same plot and the write down the derivative values also.

Or

(b) Explain about hold and hold off command in plotting with a MATLAB coding example.

SECTION C — (3 × 10 = 30)

Answer any THREE questions.

21. Write down all the predefined variables and keywords with possible description and examples and write the commands and its description for managing variables.

22. Explain how to work with matrix in MATLAB with examples and about adding and deleting elements to a vector with specified example.

23. Write down any 10 built-in array functions of MATLAB with example.

24. Explain in detail about the disp command and fprintf command to display a text.

25. Explain formatting a plot using commands.

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