Code: 15A04605 **R15**

B.Tech III Year II Semester (R15) Regular & Supplementary Examinations September/October 2021

MATLAB PROGRAMMING

(Electronics & Communication Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) Define logic expression.

(b) Which commands are used to clear command window and figure window?

(c) Find the roots of the polynomial using MATLAB: $p(x) = x^4 + 10x^3 + 35x^2 – 50x + 24$.

(d) How to get largest and smallest number in an array?

(e) List any two elementary mathematical functions.

(f) What is user defined function? Give examples.

(g) What are the types of loops does MATLAB provides?

(h) What are the basic conditional statements available in MATLAB?

(i) List matrix methods for linear equations.

(j) Find the determinant of $A = \begin{pmatrix} 6 & 4 \\ 2 & 3 \end{pmatrix}$ and write the MATLAB command for determinant.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 (a) Describe various items in the menus and toolbar available in MATLAB software.

(b) Explain about MATLAB help system.

OR

3 Mention different types of conditional statements and loop control statements.

UNIT – II

4 (a) Describe about MATLAB array and discuss about the following functions with examples used in MATLAB program: (i) Zeros ( ). (ii) Ones ( ). (iii) Eye ( ).

(b) Explain about structure arrays.

OR

5 (a) Explain cell array and its syntax in writing a MATLAB program with an example.

(b) Calculate area of triangle using structure arrays by assuming height and width.

UNIT – III

6 (a) Explain about user defined functions and write MATLAB program to sort vector v = [23 45 12 9 5 0 19 17] using MATLAB commands.

(b) Mention the syntax of function statement and create a user defined function to return the maximum number when three numbers are given as arguments

OR

7 (a) Write a MATLAB file that will analyze the following function: $y = \frac{2x^2 \cos(x)}{\exp(0.1x)}$.

(b) Describe about control-flow structures frequently used in MATLAB programming.

Contd. in page 2

UNIT – IV

8 (a) Describe commonly used commands for plotting graphs in results analysis.

(b) Discuss in detail about the various relational operators available in MATLAB.

OR

9 (a) Plot the following cosine functions, $y_1 = 2\cos(x)$, $y_2 = \cos(x)$ and $y_3 = 0.5 * \cos(x)$, in the interval $0 \le x \le 2\pi$

(b) List various relational operators available in MATLAB with detailed description.

UNIT – V

10 (a) Solve the linear system by without using the Cramer's method:

$$2x_1 + 3x_2 - x_3 = 1$$
$$x_1 + 2x_2 - x_3 = 4$$
$$-2x_1 - x_2 + x_3 = -3$$

(b) Solve a linear system of equations A*x = b involving a singular matrix, A. and assume matrix b.

OR

11 (a) Write a MATLAB program to solve the set of linear system equations using the matrix method:

$$x + 2y + 3z = 9$$
$$2x - y + 3z = 8$$
$$3x + 0y - z = 3$$

(b) A factory producing cell phones has the following cost and revenue functions:

$C(x) = x^2 + 75x + 2688$ and $R(x) = x^2 + 160x$

What is the range of cell phones they should produce each day so there is profit? Round to the nearest number that generates profit.

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JNTUA UNIVERSITY
PREVIOUS QUESTION PAPERS

Code: 15A04605 **R15**

B.Tech III Year II Semester (R15) Regular Examinations May/June 2018

MATLAB PROGRAMMING

(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Define logic expression.
(b) What is meant by debugging?
(c) Distinguish between array multiplication and matrix multiplication.
(d) Find the element by element multiplication operation between two vectors x and y.
x = [1 2 3] and y = [3 1 2]
(e) List any two elementary mathematical functions.
(f) What is user defined functions?
(g) Mention any two differences between relational and logical operators.
(h) What are the basic conditional statements available in matlab?
(i) Solve the given equation using matrix method of linear equation:

$$2x_1 + 9x_2 = 5$$
$$3x_1 - 4x_2 = 7$$

(j) Find the determinant of $A = \begin{pmatrix} 2 & 3 \\ 3 & 2 \end{pmatrix}$ and write the matlab command for determinant.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Explain the significance of script files and editor debuggers in matlab program.

OR

3 Describe various options available in the menus and toolbars in matlab software.

UNIT – II

4 Explain about the functions to sort, rotate, permute, reshape, shift array contents and circshift array contents.

OR

5 Construct multidimensional arrays with the help of concatenation function.

UNIT – III

6 Mention the syntax of function statement and create a user defined function to return the maximum number when three numbers are given as arguments.

OR

7 Describe briefly about the advanced functions available in matlab programming.

UNIT – IV

8 Mention different types of conditional statements and loop control statements.

OR

9 Describe commonly used commands for plotting graphs in results analysis.

UNIT – V

10 Write a matlab program to solve the linear system using the Cramer's method.

$$2x_1 + 3x_2 - x_3 = 1$$
$$x_1 + 2x_2 - x_3 = 4$$
$$-2x_1 - x_2 + x_3 = -3$$

OR

11 Write a matlab program to solve the set of linear system equations using elementary solution method.

$$x + 2y + 3z = 0$$
$$3x + 4y + 4z = 0$$
$$7x + 10y + 12z = 0$$

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Code: 15A04605 **R15**

B.Tech III Year II Semester (R15) Supplementary Examinations December/January 2018/2019

MATLAB PROGRAMMING

(Electronics & Communication Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) What is a command window?

(b) How to create M-file?

(c) Implement element by element multiplication operation of two matrices A and B.
$A = \begin{pmatrix} 4 & 1 \\ 2 & 3 \end{pmatrix}$; $B = \begin{pmatrix} 2 & 1 \\ 1 & 2 \end{pmatrix}$.

(d) Give any two advantages of cell array in matlab programming.

(e) Write any two advantages of advanced function programming.

(f) What is the purpose of data files?

(g) Distinguish between plot and stem in plotting results.

(h) How does the subplot function will work in plotting graphs?

(i) Find the determinant of $A = \begin{pmatrix} 3 & 4 \\ 2 & 3 \end{pmatrix}$ and write the matlab command for determinant.

(j) Write a matlab program to solve linear equations using inverse method given below.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Discuss about script file and function file in writing matlab program with examples.

OR

3 Explain about MATLAB basic syntax and matlab help system.

UNIT – II

4 Describe about MATLAB array and discuss about the following functions with examples used in MATLAB program: (i) Zeros ( ). (ii) Ones ( ). (iii) Eye ( ).

OR

5 Explain cell array and its syntax in writing a matlab program with an example.

UNIT – III

6 What are the user defined functions? Write matlab program to sort vector v = [23 45 12 9 5 0 19 17] using matlab commands.

OR

7 Discuss about elementary mathematical function with proper commands.

UNIT – IV

8 List various relational operators available in matlab with detailed description.

OR

9 Describe about control-flow structures frequently used in matlab programming with examples.

UNIT – V

10 Write a matlab program to solve the set of linear system equations using the matrix method:

$x + 2y + 3z = 9$
$2x - y + 3z = 8$
$3x + 0y - z = 3$

OR

11 Write a matlab program to solve the set of linear system equations using the Cramer's method:

$x + y + z = 11$
$2x - 6y - z = 0$
$3x + 4y + 2z = 0$

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Code: 15A04605

R15

B.Tech III Year II Semester (R15) Regular & Supplementary Examinations May/June 2019

MATLAB PROGRAMMING

(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Define logic expression.

(b) What is a command window?

(c) Distinguish between array multiplication and matrix multiplication.

(d) Find the element by element multiplication operation of two matrices A and B.

A = $\begin{pmatrix} 4 & 1 \\ 2 & 3 \end{pmatrix}$; B = $\begin{pmatrix} 2 & 1 \\ 1 & 2 \end{pmatrix}$.

(e) List any two elementary mathematical functions.

(f) Write any two advantages of advanced function programming.

(g) Distinguish between plot and stem.

(h) What are basic conditional statements available in matlab?

(i) Write matlab program to solve linear equations using inverse method given below:

A = $\begin{pmatrix} 3 & 5 \\ 5 & 8 \end{pmatrix}$.

(j) Find the determinant of A = $\begin{pmatrix} 3 & 4 \\ 2 & 3 \end{pmatrix}$ and write the matlab command for determinant.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Describe various items in the menus and toolbar available in matlab software.

OR

3 Discuss about script file and function file in writing matlab program.

UNIT – II

4 Explain about the functions to sort, rotate, permute, reshape, and shift array contents and circshift array contents.

OR

5 Describe about MATLAB array and discuss about functions zeros ( ), ones ( ) and eye ( ) used in MATLAB program.

UNIT – III

6 Explain about user defined functions and write matlab program to sort vector v = [23 45 12 9 5 0 19 17] using matlab commands.

OR

7 Describe about control-flow structures frequently used in matlab programming.

UNIT – IV

8 Describe commonly used commands for plotting graphs in result analysis.

OR

9 Discuss in detail about the various relational operators available in matlab.

UNIT – V

10 Solve the linear system by without using the Cramer's method:

$2x_1 + 3x_2 - x_3 = 1$

$x_1 + 2x_2 - x_3 = 4$

$-2x_1 - x_2 + x_3 = -3$

OR

11 Write a matlab program to solve the set of linear system equations using the matrix method:

$x + 2y + 3z = 9$

$2x - y + 3z = 8$

$3x + 0y - z = 3$

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