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Code No. : 14144 E

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD**

*Accredited by NAAC with A++ Grade*

**B.E. IV-Semester Main & Backlog Examinations, JuLY-2022**

**Mathematical Programming for Engineers (OE-II)**

Time: 3 hours

Max. Marks: 60

*Note: Answer all questions from Part-A and any FIVE from Part-B*

**Part-A (10 × 2 = 20 Marks)**

Q. No.	Stem of the question	M	L	CO	PO
1.	Write down MATLAB script for the solution of algebraic equation $2s^2 + 10s + 12 = 0$	2	3	3	1
2.	Consider a matrix $x = \begin{bmatrix} 0.1 & 0.2 & 0.5 \\ 0.6 & 2 & 0.3 \end{bmatrix}$ . Write down the code to form $x_1 = [0.1 \ 0.2 \ 0.5]$ and $x_2 = \begin{bmatrix} 0.1 & 0.2 \\ 0.6 & 2 \end{bmatrix}$ from the given matrix $x$ .	2	2	3	2
3.	Create a function file and write down the code to plot the contour of $z = x^2 + y^2$	2	4	3	1
4.	Draw the plot of the below MATLAB code. $x = -\pi:\frac{\pi}{20}:\pi$ ; $plot(x, \sin(x), 'r-', x, \cos(x), 'b:')$	2	2	2	5
5.	Write down a MATLAB code to find the largest two eigen values of the matrix $A = \begin{bmatrix} 1 & 0 & 0 & 1 & -1 \\ 0 & 2 & 3 & 5 & 0 \\ -1 & 0 & 0 & 0 & 1 \\ 6 & 8 & 1 & 2 & -2 \\ 1 & 1 & 1 & 1 & 1 \end{bmatrix}$	2	3	1	1,2
6.	Write down the syntax for element-by-element multiplication and division of two matrix.	2	3	1	2
7.	When "fsolver" is used? Write down its syntax.	2	1	3	2
8.	What do you mean by curve fitting? How MSE (mean-square error) is used?	2	1	2	1
9.	Write down the MATLAB syntax of ODE23 and ODE45.	2	1	4	1
10.	What is GUI? What are the ways one can build MATLAB GUI.	2	2	5	5
<b>Part-B (5 × 8 = 40 Marks)</b>					
11. a)	illustrate the syntax of following i) if else ii) for loop iii) while loop iv) switch case statement.	5	1	3	1
b)	Write down the MATLAB code to calculate 6! (six factorial) by using for loop.	3	3	3	2
12. a)	Compare script file and function file? What is the important difference between these two? What are the precautions needed while saving script file and function file? What is debugging? What are the common errors that may face while executing the program?	5	1	3	2

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