

2074

B.E.(MEC), First Semester
ESC-X02: Computer Programming (MATLAB)

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Section.

x-x-x

- Q1. (a) How to create an M-file? 2*5=10
(b) Give any two advantages of cell array in MATLAB programming.
(c) How does the subplot function work in plotting graphs?
(d) Name the function used to read audio file. Also define, how can we make a movie in MATLAB?
(e) What are *quad* and *trapz* commands?

Section A

- Q2. (a) Explain the significance of script files and editor debuggers in MATLAB program. 5
(b) What is a multidimensional array? Construct multidimensional arrays with the help of concatenation function. How can one address elements of a multidimensional array? Illustrate with an example. 5
Q3. Describe various relational and logical operators used in MATLAB programming. Illustrate the use of each giving suitable examples. 10
Q4. (a) Compare script file and function file in MATLAB. 5
(b) Illustrate Nested Loop and Nested Conditional statements. 5

Section B

- Q5. (a) How do you find derivative of a given polynomial using MATLAB? 5
(b) Describe *conv* and *deconv* commands with an example. 5
Q6. Write a program to draw the curves for the functions $y = \sin(x)$, $y = \tan(x)$ and $y = 6x+9$ in a single figure window using *line* and *hold* commands. Also include in the program how to label the figure window. Use *text* command to write the equation on the curves plotted. 10
Q7. Use MATLAB to solve the following first order differential equation: 10

$$\frac{dx}{dt} + 2x = 0$$

with initial condition as $x(0) = 1$, for $0 < t < 10$, using appropriate solver.

Also write code to display the variation of x with t . Label the figure and the axes and show grid lines on the plot.

x-x-x