Karunya University
(Karunya Institute of Technology and Sciences)
(Declared as Deemed to be University under Sec.3 of the UGC Act, 1965)

End Semester Examinations - 2015-16 Even Semester - May 2016

14CE3034 Fundamentals of MATLAB programming

Set A

Time : 3 hrs
Total Marks: 100

1. a. What are variables and arrays? (4)

b. What are the functions of following commands in MATLAB? (4)

inv(A), det(A), rank(A),size(A),trace(A),eye(4),

c. i. What the rules governing variable names and strings? (4)

ii. What are arithmetic, relational and logical operators? List them out. (4)

iii. How Matrices can be generated in MATLAB and how the sub matrix can be extracted in MATLAB? (4)

OR

2. a. Explain how Pseudo code and flow chart are useful in effective programming? (5)

b. Explain in detail about different data types with example. (10)

c. List down the precedence rules for operators. (5)

3. a. Differentiate between 'for' loops and 'while' loops. List down the conditions governing above mentioned loops (10)

b. Write a script that asks for a concentration (in mg/l) and computes the equivalent concentration in ppt, ppb and mg/ml. The script should keep running until no number is provided to convert. (10)

OR

4. a. What are different types of control structures in MATLAB? Explain any one of the control structures with an example in the field of water resources management. (10)

b. Write a function file that classifies a flow according to the values of its Reynolds (Re) and Mach (Ma) numbers, such that if Re < 2000, the flow is laminar; if 2000 < Re < 5000, the flow is transitional; if Re > 5000, the flow is turbulent; if Ma < 1, the flow is sub-sonic, if Ma = 1, the flow is sonic; and, if Ma >1, the flow is super-sonic. (10)

5. a. Involving fprintf and nested for-loop commands, write a Matlab script to print the following pattern: (10) (10)

1

12

123

1234

b. Explain in detail with example about how the data can be written or read from a file in MATLAB? (10)

OR

6. a. How the *fprint* command can be used to display a mix of text and numerical data. Explain how this command can be used to insert more than one number. Explain with example. List down the rules governing the *fprint* command. (10)

b. Write Matlab commands to enter data to a text file and read them from a text file. (5)

c. List down formatted console input-output statement in MATLAB. (5)

7. a. Explain how the following three dimensional plot commands are useful to present data consisting of more than two variables. (12)

i. Line plots.

ii. Mesh and surface plots.

Give an example for each command.

b. Write a MATLAB program to plot the unit hydrograph curve. (8)

OR

8. a. How the subplots can be created using MATLAB function? Explain with an example. (8)

b. What are the commands for adding title, text, and axis labels in two dimensional graphical plot in MATLAB. Also write the commands for adding linestyle, markers and colors in the plot. (12)

9. a. List down the steps involved in GUI design in MATLAB. (5)

b. What is the use of a handle in MATLAB GUI? (3)

c. What are uicontrol objects? How will you create Menus, Edit box and sliders in MATLAB GUI. Explain with an example. (12) (12)

Wishing you All the Best
