Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem Examination May-2024

CB3CO27 IT Workshop Scilab/MATLAB

Programme: B.Tech. Branch/Specialisation: CSBS

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i. Which command is used to inspect variables in the MATLAB workspace? **1**

(a) disp() (b) whos (c) clear (d) format

ii. Which symbol is used to separate multiple statements on the same line in MATLAB? **1**

(a) Period (.) (b) Comma (,) (c) Semicolon (;) (d) Colon (:)

iii. What is the purpose of the ones() function in MATLAB? **1**

(a) Generates a matrix with all elements set to 1

(b) Generates a matrix with all elements set to 0

(c) Generates an identity matrix

(d) Generates a magic square matrix

iv. What does the colon operator (:) in MATLAB primarily represent? **1**

(a) Addition (b) Subtraction

(c) Concatenation (d) Creation of a range

v. How do you specify line styles and colors when plotting multiple data sets in MATLAB? **1**

(a) Use the `lineStyle()` and `colorStyle()` functions

(b) Specify them as arguments to the `plot()` function

(c) Use the `setLineStyle()` and `setColor()` functions

(d) Use the `plotStyle()` function

vi. How do you plot multiple data sets on the same plot in MATLAB? **1**

(a) Use separate figure windows for each data set

(b) Use the `subplot()` function

(c) Use the `hold on` command

(d) Use the `combinePlots()` function

P.T.O.

vii. What is the purpose of input and output arguments in M-File functions? **1**
(a) To specify the file format
(b) To control the flow of execution
(c) To pass data into and out of the function
(d) To define the function's name

viii. What is the purpose of M-File Scripts in MATLAB? **1**
(a) To execute a sequence of commands
(b) To define reusable functions
(c) To store data in arrays
(d) To generate plots

ix. What happens when execution reaches a breakpoint in MATLAB? **1**
(a) The code stops executing
(b) The code continues to execute normally
(c) An error message is displayed
(d) The MATLAB environment crashes

x. What is the purpose of correcting an M-file in MATLAB debugging? **1**
(a) To generate plots
(b) To add comments to the code
(c) To fix errors identified during debugging
(d) To optimize the code for performance

Q.2 i. What is MATLAB? Write some basic features of MATLAB. **2**

ii. How can you inspect variables in the MATLAB workspace? Which command is used to remove unwanted variables from the MATLAB workspace? **2**

iii. Explain the importance of good programming practices in MATLAB and provide examples. **6**

OR iv. What are the strengths and weaknesses of MATLAB as a programming environment? **6**

Q.3 i. How do you create a vector with equally spaced values in MATLAB? What is the function of the `eye()` command in MATLAB? **3**

ii. Explain the role of matrix indexing in MATLAB and provide an example. How do you create a sub-matrix from an existing matrix in MATLAB? Provide an example. **7**

OR iii. Explain the concept of array operations in MATLAB and provide examples of common array operations. Also Describe the role of other mathematical functions in MATLAB, such as trigonometric functions, exponential functions, and logarithmic functions. Provide examples of their usage. **7**

Q.4 i. How do you add a title to a plot in MATLAB? What commands are used to add axis labels to a plot in MATLAB? **3**

ii. Describe the process of creating a simple plot in MATLAB, including adding a title and axis labels. Also Explain the role of legends in MATLAB plots and describe how to add legends to plots. **7**

OR iii. Describe the process of specifying line styles and colours for multiple data sets in MATLAB plots. Provide examples illustrating different line styles and colours. **7**

Q.5 i. What is the purpose of M-File Scripts in MATLAB? What is a side-effect in the context of M-File Scripts? **3**

ii. Describe the purpose and structure of M-File functions in MATLAB. Provide an example. **7**

OR iii. Explain the control flow structures available in MATLAB and provide examples of their usage. **7**

Q.6 i. What is a breakpoint? How do you set a breakpoint in MATLAB? **3**

ii. Describe the process of debugging an M-file in MATLAB. **7**

OR iii. Explain the significance of breakpoints in MATLAB debugging and how they are set. Provide an example. **7**

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Marking Scheme

IT Workshop Scilab - MATLAB-CB3CO27(T)

Q.1	i)	Which command is used to inspect variables in the MATLAB workspace? b) whos	**1**
	ii)	Which symbol is used to separate multiple statements on the same line in MATLAB? c) Semicolon (;)	**1**
	iii)	What is the purpose of the ones() function in MATLAB? a) Generates a matrix with all elements set to 1	**1**
	iv)	What does the colon operator (:) in MATLAB primarily represent? d) Creation of a range	**1**
	v)	How do you specify line styles and colors when plotting multiple data sets in MATLAB? b) Specify them as arguments to the `plot()` function	**1**
	vi)	How do you plot multiple data sets on the same plot in MATLAB? c) Use the `hold on` command	**1**
	vii)	What is the purpose of input and output arguments in M-File functions? c) To pass data into and out of the function	**1**
	viii)	What is the purpose of M-File Scripts in MATLAB? a) To execute a sequence of commands	**1**
	ix)	What happens when execution reaches a breakpoint in MATLAB? a) The code stops executing	**1**
	x)	What is the purpose of correcting an M-file in MATLAB debugging? c) To fix errors identified during debugging	**1**
Q.2	i.	What is MATLAB? Write some basic features of MATLAB.	**1+1**
	ii.	How can you inspect variables in the MATLAB workspace? Which command is used to remove unwanted variables from the MATLAB workspace?	**1+1**
	iii.	Explain the importance of good programming practices in MATLAB and provide examples.	**4+2**
OR	iv.	What are the strengths and weaknesses of MATLAB as a programming environment?	**3+3**
Q.3	i.	How do you create a vector with equally spaced values in MATLAB? What is the function of the `eye()` command in MATLAB?	**1+2**
	ii.	Explain the role of matrix indexing in MATLAB and provide an example. How do you create a sub-matrix from an existing matrix in MATLAB? Provide an example.	**3+2+2**
OR	iii.	Explain the concept of array operations in MATLAB and provide examples of common array operations. Also Describe the role of other mathematical functions in MATLAB, such as trigonometric functions, exponential functions, and logarithmic functions. Provide examples of their usage.	**3+2+2**
Q.4	i.	How do you add a title to a plot in MATLAB? What commands are used to add axis labels to a plot in MATLAB?	**1+2**
	ii.	Describe the process of creating a simple plot in MATLAB, including adding a title and axis labels. Also Explain the role of legends in MATLAB plots and describe how to add legends to plots.	**3+2+2**
OR	iii.	Describe the process of specifying line styles and colours for multiple data sets in MATLAB plots. Provide examples illustrating different line styles and colours.	**4+3**
Q.5	i.	What is the purpose of M-File Scripts in MATLAB? What is a side-effect in the context of M-File Scripts?	**2+1**
	ii.	Describe the purpose and structure of M-File functions in MATLAB. Provide an example.	**4+3**
OR	iii.	Explain the control flow structures available in MATLAB and provide examples of their usage.	**4+3**
Q.6	i.	What is a breakpoint? How do you set a breakpoint in MATLAB?	**2+1**
	ii.	Describe the process of debugging an M-file in MATLAB	**7**
OR	iii.	Explain the significance of breakpoints in MATLAB debugging and how they are set. Provide an example	**4+2+1**

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