

PART A

10x2=20

Answer ALL the questions

1. Generate a vector v of 10 random integers between 1 and 50.
2. Write a MATLAB function to solve the liner equations.
3. How can you record everything that appears in the Command Window?
4. Read an image size of 224×224 and slice the image into four equal parts.
5. Consider 5×5 matrix of integers, find the largest value from each row and store them in a vector.
6. Create a 4×4 matrix whose elements are multiples of 5.
7. Create a 6×6 block matrix with: Top-left: 3×3 identity, top-right: 3×3 zeros, bottom-left: 3×3 ones, bottom-right: 3×3 random numbers between 0 and 1.
8. Write a MATLAB program to compute $S = \sin(1)/1 + \dots + \sin(n)/n$ for a given n .
9. List out the formatting commands to display the variables.
10. Consider an image of size 224×224 and create an output image by deleting the even rows.

PART-B

3 x 10=30

Answer ALL the questions

- 11.a) Design and develop an app using App Designer to browse an image file, display the selected image, width, height, minimum, maximum, and average pixel values of the image. b) Write a MATLAB program that performs binary and multilevel thresholding on a grayscale image.
12. Outline the user-defined, built-in function and commands in MATLAB that are used for matrix manipulations.
13. Write a program to read 10 elements in an array. Ask search element from the user and then find the square root of a search element. Return the index of the square root of a search element. If element is not present in an array, display message as element is not present in an array. b) Describe the commands for the vector manipulations.



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School of Computing

Second CIA Exam – Sep 2025

Course Code: INT318

Course Name: IT WORKSHOP

SCILAB/MATLAB

Duration: 90 minutes Max Marks: 50

PART- A

10 x 2 = 20 Marks

Answer all the questions

1. State the advantages of using function handles in MATLAB.
2. Write MATLAB code to invert colors of the binary image.
3. Write a command extract the center 100x100 region from a 512x512 image.
4. How do you convert a grayscale image to a binary image using thresholding?
5. Write a user-defined function to reverse an array.
6. Create a function that takes an array and returns an array with all 0's removed.
7. Differentiate between `length()` and `size()` functions in MATLAB.
8. Write a MATLAB program to find the sum of numbers until the user enters a negative number using a `do...while` loop.
9. Write a MATLAB program to validate an e-mail Id.
10. Create a matlab script to display only positive numbers in a vector using the `continue` statement.

PART-B

3 x 10 = 30 Marks

Answer any THREE questions

11. Write a MATLAB program to visualize datasets by showing the frequency of digits (0–9), the share of different transport modes, the relation between hours of exercise and calories burned, the sales of the products across five regions, and the most frequent words in a paragraph of text.
12. Outline the string functions with matlab input command and output.
13. a) Write a MATLAB function that accepts the height (in mm) and diameter (in mm) of a battery, compares the measurements with the nominal dimensions of standard types—AAA (44.5, 10.5), AA (50.5, 14.5), C (50.0, 26.2), D (61.5, 34.2), and 9V (48.5, 26.5). Find the battery type and return the result as output.
b) Develop a MATLAB script that checks whether a given vector is already sorted. If the vector is not sorted, rearrange its elements in ascending order.
14. Illustrate the various types of user defined functions such nested, recursive and m-file to compute the following series: $1^1 + 2^2 + 3^3 + 4^4 + \dots + n^n$.



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School of Computing
Third CIA Exam – Nov 2025
Course Code: INT318
Course Name: IT WORKSHOP
SCILAB/MATLAB
Duration: 90 minutes Max Marks: 50

PART- A

Answer all the questions

10 x 2 = 20 Marks

1. List out the commands used in the command window.
2. Brief note on matlab app dropdown component properties.
3. Write a user defined function to check if the array is sorted or not.
4. Mention any two methods to solve a system of linear equations.
5. Write a user-defined function to generate OTP() that returns a 4-digit random OTP each time it is called.
6. State the steps involved in the debugging process.
7. A teacher stores all student marks in an array. Write a MATLAB script to visualize the highest, lowest, and average (mean) scores using the suitable plot function.
8. Differentiate between nested functions and local functions in MATLAB.
9. Define a use defined function to convert the RGB image into binary image.
10. Write a short note on the different types of breakpoints and their purposes.

PART- B Answer any Two questions

2 x 10 = 20 Marks

11. Implement a MATLAB script that demonstrates the use of switch-case to produce different types of matrices (such as identity, zero, and random) using both predefined and custom functions.
12. Illustrate file handling operations to read and write different data format such as tables, text, and numerical values.
13. Design a MATLAB GUI application for:
 - a) A scientific calculator
 - b) A currency converter using combo box selection and callback functions

PART- C Answer the question

1 x 10 = 10 Marks

14. Design a MATLAB GUI that allows users to browse an image, train a deep learning transfer learning model, and predict the category of a new image among five predefined classes.