SASTRA DEEMED UNIVERSITY

(A University under section 3 of the UGC Act, 1956)

End Semester Examinations

Nov 2025

Course Code: **INT318**

Course: **IT WORKSHOP SCILAB / MATLAB**

QP No. **:S1267-7**

Duration: **3** hours

Max. Marks**:100**

PART - A

Answer all the questions **10 x 2 = 20 Marks**

1. State the difference between who and whos command.
2. What is the function of diary command in command window?
3. Illustrate how the format command affects the display style of floating-point numbers.
4. Write a matlab script to check if a given input is a valid phone number (10 digits).
5. Design an app that uses push buttons to display entered number is positive or negative.
6. Write a user defined functions to generate a vector of even integers between 2 and 20.
7. Create a matlab script to access a text file and show the stored information.
8. List the line styles, marker symbols, and color specifications used in MATLAB plots.

9. How a breakpoint helps during debugging process?

10. Mention any two functions automatically generated when creating a new GUI.

PART - B

Answer any FOUR questions **4 x 15 = 60 Marks**

11. Design an app to extract the statistical features and image information from the 2D gray scale image in the size of 224 x 224.

12. Write a program for the following.
    a) Extract the elements that appear only once in a given vector and check if a given vector is sorted in ascending order. (8)
    b) Outline the vector statistical functions. (7)

13. a) Write a MATLAB function that takes the measured diameter (in mm) and mass (in g) of a coin and returns its value in dollars. The nominal measurements of the coins are: Cent (19.05 mm, 2.50 g), Nickel (21.21 mm, 5.00 g), Dime (17.91 mm, 2.50 g), Quarter (24.26 mm, 6.25 g), Half-dollar (30.61 mm, 11.34 g), and Dollar (26.50 mm, 8.10 g). (8)
    b) Evaluate the sum of series using nested function:

$$sum = {}^{1}/_{1} + {}^{2}/_{3} + {}^{3}/_{5} + {}^{4}/_{7} + {}^{5}/_{11} \ldots + n \quad (7)$$

14. a) Develop a recursive MATLAB function to generate the nth Fibonacci number. (7)
    b) Design a MATLAB program to extract the diagonal elements of a square matrix and compute sum of their factorial using recursive functions. (8)

15. Design a MATLAB app to classify fruit images into four categories. The app should include options for image browsing, resizing, feature extraction, and classification using a trained model.

16. Create a suitable MATLAB plots for the following.
    a) Frequency of words in a paragraph
    b) Distribution of exam scores
    c) Relationship between study hours and marks
    d) Marks obtained by students in five subjects using a horizontal display
    e) Market share of five smart phone companies in percentage form.

PART - C

Answer the following **1 x 20 = 20 Marks**

17. a) Create a MATLAB function to search for a given element in a list using the linear search technique and return its index. (5)
    b) Explain the steps involved in debugging a script using the MATLAB Editor. (5)
    c) Write a MATLAB script to display different types of matrix generation using switch case. (10)

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