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VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (CBCS) IV-Semester Advanced Supplementary Examinations, July-2019

Programming for Engineers
 (Open Elective-II)

Time: 2 hours

Max. Marks: 40

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (5 × 2 = 10 Marks)

1. Distinguish between *format short* and *format long* commands MATLAB.
2. Explain about *whos* and *clear x y z* commands in MATLAB.
3. Mention the applications of MATLAB.
4. What is the importance of semicolon(;) operator in MATLAB.
5. Give the steps to create GUI.

Part-B (5 × 6 = 30 Marks)

- 6.a) Show about the different plotting styles in MATLAB. [2]
- b) List the different types of windows available in MATLAB and explain the functionality of each. [4]
- 7.a) Explain the following in MATLAB. [4]

i) plot	ii) stem	iii) xlabel	iv) ylabel
v) legend	vi) title	vii) plot3	viii) figure
- b) $x = \text{eye}(2,2)$; $y = [x(:,1) \ x(:,2)]$; $A = [x \ y; \ y \ x]$; What is the final value of $A(1:2,1:2)$? [2]
- 8.a) Using the MATLAB built-in functions (*zeros, ones, eye*) write a matlab code for creating the following matrix. [3]

$$\begin{pmatrix} 0 & 0 & 1 & 1 \\ 0 & 0 & 1 & 1 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$
- b) Find the mistakes in the following commands and correct them. [3]


```
>>P =linespace(2,3)
>>P[ 1, 2] = 4
>>K= ones(1;3)
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- 9.a) With an examples describe the functionality of *for* and *while* loops used in MATLAB. [3]
- b) Write a function file that converts temperature in degrees Centigrade (°C) to degrees Fahrenheit (°F). Use input and fprintf commands to display a mix of text and numbers. Recall the conversion formulation, $F = C*(9/5)+32$. [3]

- 10.a) With an example brief about switch-case-otherwise construction in MATLAB. [3]
- b) Write the MATLAB commands for drawing the curve [3]

$$f(x, y) = -\left(\frac{x}{5}\right)^2 - \left(\frac{y}{2}\right)^2 - 16 \quad \text{for } -5 \leq x \leq 5 \text{ and } -5 \leq y \leq 5$$

Using meshgrid and mesh functions.

- 11.a) Explain the importance of structures in MATLAB. [4]
- b) Give the steps to solve the following system of linear equations using MATLAB. [2]
 $2x+3y+4z=5$; $y+4z+x=10$; $-2z+3x+4y=0$;

- 12.a) What are the different types of files available in matlab for storing information? and explain each of them. [3]

- b) Write a script file named sineseries.m that computes the value of $\sin(x)$ at a given x using n terms of the series expansion of sine function: [3]

$$\sin(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \dots = \sum_{k=1}^n (-1)^{k-1} \frac{x^{2k-1}}{(2k-1)!}$$

