SH-III/ELC/305-SEC-1/19

B.Sc. 3rd Semester (Honours) Examination, 2019-20

ELECTRONICS

Course ID : 31715 **Course Code : SH-ELC-305-SEC-1**

Course Title: Programming with MATLAB

Time: 2 Hours **Full Marks: 40**

The figures in the right hand side margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer *any five* of the following questions: 2×5=10

(a) What is the difference between 'clc' and 'clear' commands?

(b) What will be the output from the following MATLAB Commands?

$\gg a = 7;$

$\gg B = 5;$

$\gg c = a + B;$

$\gg d = [1, a + B; a, c]$

(c) What is the difference between 'Who' and ' Whos' Commands?

(d) Explain 'input' command in MATLAB.

(e) What will be the output of the following MATLAB Command?

$\gg A = [1\ 2\ 3\ ;4\ 5\ 6\ ]$

$\gg S = Size\ (A)$

(f) What will be the output of the following Commands?

(i) Zeros (3, 2)

(ii) Ones (2, 3)

(g) Write MATLAB Command to find the roots of the polynomial $y = x^3 - 3x^2 + 2x$.

(h) Write MATLAB expressions for the following:

(i) $|xe^x - \mathrm{Cos}(bx)|$

(ii) $x = \log_e \sqrt{\frac{a}{bc}}$.

2. Answer *any four* of the following questions: 5×4=20

(a) What is Variable? How is it defined in MATLAB? Give rules regarding variable names. 1+1+3=5

(b) Explain 'Relational' and 'logical' operators in MATLAB with example. 2½+2½=5

(c) Write a MATLAB function to calculate the hyperbolic Sine and Cosine function. 5

(d) Write a function file for polar to rectangular conversion. 5

(e) Write a MATLAB script file to check whether the given number is even or odd. 5

(f) Write a MATLAB script file to plot the curve for a function described by the equation $Y = x^3 + 2x^2 - 5$ where *x* varies from –10 to 10. Label *x* and *y*–axes and provide a suitable title to the plot. 5

3. Answer *any one* of the following questions: 10×1=10

(a) What is script file and function file in MATLAB? Write a script and a function file to find out the distance between two points (x_1, y_1) and (x_2, y_2) specified by the user on Cartesian Coordinate System. 5+5=10

(b) Explain 'break' and 'continue' Commands in MATLAB with suitable example. 5+5=10

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