

2019

B. Sc.

1st Semester Examination

**ELECTRONICS (Honours)**

**Paper : C 2-P**

**(Practical)**

**(Mathematics Foundation for Electronics)**

Full Marks : 20

Time : 3 Hours

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

*The figures in the margin indicate full marks.*

Answer *one* question selecting it by a lucky draw.

1. Write a program in SCILAB/MATLAB to solve the following eq<sup>n</sup> :

$$y^3 y' + y^{4/x} = x$$

2. Write a program in SCILAB/MATLAB to solve

$$y'' + 7y' + 12y = 0$$

[ Turn Over ]

3. Write a program in SCILAB/MATLAB to explore the behavior of the series,

$$\sum_{n=1}^{\alpha} \frac{n}{n^3 - 4}$$

Explain whether the series seems to converge/diverge.

4. Write a program in SCILAB/MATLAB to explore the behavior of the series

$$\sum_{n=1}^{\infty} \frac{(x-1)^n}{2^n}$$

Explain whether the series seems to converge or diverge.

5. Write a program in SCILAB/MATLAB to solve the following equation :

$$(1 + x^2) y' + 6xy = 2x$$

6. Write a program in SCILAB/MATLAB to solve the following systems by Gauss Elimination method.

$$2x_1 + 3x_2 + 2x_3 = 2$$

$$10x_1 + 3x_2 + 4x_3 = 16$$

$$3x_4 + 6x_2 + 2x_3 = -6$$

Correct up to five decimal places.

7. Write a program in SCILAB/MATLAB to solve the following system by Gauss Elimination method.

$$2x + y = 2$$

$$x + 2y + z = 2$$

$$y + 2z + t = 2$$

$$z + 2t = 1$$

Correct up to five decimal places.

8. Write a program in SCILAB/MATLAB to solve the following system by Gauss-seidel method :

$$2x + 10y + z = 13$$

$$10x + y + z = 12$$

$$2x + 2y + 10z = 14$$

Correct up to five decimal places.

### Distribution of Marks

Experiment	: 15 marks
Laboratory Note Book	: 02 marks
Viva-voce	: 03 marks
Total	: 20 marks