

2019

**COMPUTER ORIENTED  
NUMERICAL METHODS**

Paper : PGDCAEL2\*(2.3)

Full Marks : 70

Time : Three hours

**The figures in the margin indicate  
full marks for the questions.**

1. What do you mean by normalization of floating point number? Represent  $5.625_{10}$  in the 32-bit floating point format. 2+3=5
2. Explain 3 types of errors encountered while performing numerical calculations. 5
3. Find a root of  $x^3 - x - 1 = 0$  using bisection method correct to three decimal places. 10

4. Find the root of  $x^4 - x - 10 = 0$  using Newton-Raphson method correct to three decimal places. 10
5. (a) Write a program to implement Euler's method. 10

Or

- (b) Apply Euler's method to solve

$$\frac{dy}{dx} = x + y, y(0) = 0, \text{ choosing the step length } h = 0.2 \text{ (carry out 6 steps).}$$

6. Solve the following using Gauss elimination method : 10

$$2x_1 + 4x_2 + 2x_3 = 15$$

$$2x_1 + x_2 + 2x_3 = -5$$

$$4x_1 + x_2 - 2x_3 = 0$$

7. (a) Evaluate  $\int_0^1 \frac{1}{1+x^2} dx$  using trapezoidal rule and Simpson's  $\frac{1}{3}$ rd rule taking  $h = 0.25$  10

Or

- (b) Write a program to implement trapezoidal rule.

8. Calculate mean, median and mode of the following data : 10

Marks	10-20	20-30	30-40	40-50	50-60
Frequency	5	20	25	15	5

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## OVERVIEW OF OPERATING SYSTEM

Paper : PGDCA-1.3

Full Marks : 30

Time : One hour

**The figures in the margin indicate full marks for the questions.**

Answer **any six** questions.

1. What is operating system? Explain its *two* objectives. 2+3=5
2. Explain Autoexec.bat file in DOS. 5
3. Define OLE. What are the advantages of OLE? 2+3=5
4. What do you mean by process? Define kernel, shell and utilities. 2+3=5
5. Explain Linux file system. 5

6. Explain the different versions of Windows operating system. 5
7. Write short note on : (**any one**) 5
  - (a) Multiprogramming operating system
  - (b) Batch processing operating system.
8. What are the main differences between internal commands and external Commands. Give the syntax of following DOS command : 2+3=5  
DIR, ATTRIB, MOVE
9. Explain the important features of Linux operating system. 5

Contd.