

Exam. Code : 105702

Subject Code : 1426

B.Sc. (Information Technology) 2nd Semester

NUMERICAL METHODS & STATISTICAL

TECHNIQUES

Paper—III

Time Allowed—Three Hours] [Maximum Marks—75

Note :— There are **four** sections, each having **TWO** questions.Attempt any **FIVE** questions, selecting at least **ONE** from each section. All questions carry equal marks.**SECTION—A**

- (a) Which are different types of errors ?
(b) What are Numerical Methods ? Differentiate between numerical methods and numerical analysis.
- Solve the following system of linear equations by Gauss Jordan Method :

$$x + y - z = 2$$

$$2x + 3y + 5z = -3$$

$$3x + 2y - 13z = 6$$

SECTION—B

3. Fit an exponential curve of the form $Y = ab^x$ to the following data :

X	1	2	3	4	5	6	7	8
Y	1.0	1.2	1.8	2.5	3.6	4.7	6.6	9.1

4. Using the following data, find the value of y when $x = 218$ using Newton's forward interpolation method :

X	100	150	200	250	300	350	400
Y	10.63	13.03	15.04	16.81	18.42	19.90	21.27

SECTION—C

5. Explain various measures of dispersion. Give an example of each.
6. Calculate mean and median from following data :

X	F
0-4	10
4-8	12
8-12	18
12-14	7
14-18	5
18-20	8
20-24	4
24 and above	6

SECTION—D

7. Fit a second degree polynomial to the data in the table given below :

X	1.0	1.5	2.0	2.5	3.0
Y	1.1	1.3	1.6	2.0	3.4

8. The corresponding values of x and y are given by following table :

x	87.5	84.0	77.8	63.7	46.7	36.9
y	292	283	270	235	197	181

Fit parabola of the form $y = a + bx + cx^2$ by the method of group averages.