2316

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Class - BCA & BSc (IT) – Sem II

Subject – Numerical Methods & Statistical Techniques

Paper - III

Time Allowed : 3 Hours **Maximum Marks : 75**

Note:- Attempt any 5 questions

1. (a) Discuss the various types of Errors that occur while performing numerical computations. 6

(b) Given that root of non-linear equation

$X^3 - X - 4 = 0$

lies in the fourth interval (1.0, 2.0). Find the root correct to three decimals using false position method. 9

2. Solve using Gauss Elimination Method

$X + Z = 10$

$Y + X = 9$

$Z + Y = 11$ 15

3. (a) Calculate the approximate value of

$$\int_{-3}^{3} X^4 dx$$ 10

by taking 7 ordinates by using Simpson's $\frac{3}{8}$ Rule.

(b) Differentiate between direct & iterative methods. 5

4. Estimate the expectation of life of age 16 from the following data: 15

Age	10	15	20	25	30	35
Expectation of life (years)	35.4	32.2	29.2	26.0	23.2	20.4

5. Fit an exponential Curve of the form $Y = ab^x$ to the following data: 15

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

6. (a) What is Central Tendency? Discuss the various measures of Central tendency. 8

(b) Find Geometric mean of the marks : 7

Marks :	10	20	30	40	50
No of Students :	4	6	8	2	1

7. In the following table , marks obtained by 100 students are given : 15

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	5	8	10	15	20	25	10	7

Calculate standard deviation, coefficient of standard deviation and coefficient of variation.

8. Find out Q_3, Median and P_{35} from the following data:-

Classes	10-19	20-29	30-39	40-49	50-59	60-69
Frequency	4	6	10	15	9	6

15

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