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Total No. of Questions: 07

Total No. of Pages: 02

B.Sc. IT/BCA (Sem. 2)
MATHEMATICS-II
Subject Code: BSIT-202/BSBC-202
Paper ID: B1114

Time: 3 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

1. Section A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. Section B contains **SIX** questions carrying **TEN** marks each and students have to attempt any **FOUR** questions.

SECTION A

1.
 - (a) Define Transpose of a Matrix.
 - (b) Define Cofactors.
 - (c) Differentiate Mean & Median.
 - (d) What do you mean by Coefficient of Variation?
 - (e) What are the features of Statistics?
 - (f) Define function of a function.
 - (g) What do you mean by Definite Integral?
 - (h) What is Simpson's 3/8 rule?
 - (i) Define Maxima and Minima.
 - (j) Explain Trapezoidal rule.

SECTION B

2. Obtain the inverse of the following matrix using elementary operations

$$A = \begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{bmatrix}$$

3. Solve by matrix method:
 $x + y = 3, \quad y + z = 5, \quad z + x = 4$
4. An analysis of the monthly salaries paid to employees in two companies X and Y, belonging to the same industry, provides the following results:

	Company A	Company B
Number of employees	1200	1500
Average Salary (Rs.)	12000	9000
Standard deviation of salary (Rs.)	200	225

Find out the following from the above data:

- (i) Combined average monthly salary and the combined standard deviation of salaries of the two companies.
- (ii) The company having greater variability in individual salaries.

5. Differentiate $e^{\sqrt{x}}$ *ab initio*.

6. A man pays his savings which amount to Rs 25 every six months, into a bank which allows him interest payable quarterly at the rate of $2\frac{1}{2}$ percent per annum. Find the sum which will stand to his credit at the end of 10 years from his first payment.

7. Evaluate $\int \frac{x^2+2x+3}{\sqrt{x^2+x+1}} dx$.