Seat No.

BACHELOR OF SCIENCE (INFO. & TECH.)-CS Examination

BSCIT SEMESTER-I JANUARY 2025 (Regular) JANUARY - 2025

MATHS. & STAT. FOUNDATION OF COMPUTER SCIENCE

Faculty Code : 017

Subject Code : 24CBBSIT-SE-01-01006

Time : 1 Hours] [Total Marks : 25

Q.1 (A) Prove that $\begin{vmatrix} 1 & a & a^2+d \\ 1 & b & b^2+d \\ 1 & c & c^2+d \end{vmatrix} = (a-b)(b-c)(c-a)$ 5

Q.1 (B) Solve the following equations using cramer's method. 5

$2x - y + 6z = 13$

$4x - 3y - 3z = 8$

$8x - 7y - 9z = 10$

OR

Q.1 (A) If $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$ then prove that $A2 - 4A - 5I = 0$. Hence Find A^{-1}. 5

Q.1 (B) If $A = \begin{bmatrix} 2 & 4 & -5 \\ 7 & 0 & 4 \\ 2 & -3 & 2 \end{bmatrix}$ $B = \begin{bmatrix} 6 & -2 & 4 \\ 8 & 4 & 10 \\ 4 & 0 & 6 \end{bmatrix}$ $C = \begin{bmatrix} 8 & 2 & 4 \\ 4 & 6 & 4 \\ 2 & -4 & 6 \end{bmatrix}$ 5

Then Prove that A(B+C) = AB + AC

Q.2 (A) From the following frequency distribution, calculate the mean, median and mode. 5

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	5	7	8	11	9	4	3

Q.2 (B) Find the combined mean from the following data 5

Group	I	II	III	IV
n_i	10	20	30	40
$\bar{x}$	15	10	12	20

OR

Q.2 (A) Calculate Variance from the following data. 5

Class	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
Frequency	7	11	12	19	16	7	5	2

Q.2 (B) Calculate range, coefficient of range, quartile deviation and coefficient of Q.D. 5

X	15	20	25	30	35	40	45
F	12	16	18	20	22	23	25

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Q.3 The sum of first 11 terms of an AP is 19 and the sum of first 19 terms of and AP is 11. Find the sum of first 30 terms. 5

OR

Q.3 Three numbers whose sum is 15 are in AP. If 1, 4 and 19 are added to the the result is in GP. Find the numbers. 5

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