National Institute of Technology Kurukshetra
Machine Learning and Data Analytics (CSIC-221)
Mid sem-1

Time- 50min | Max Marks -20

All Questions are compulsory.

Q-1. If X is a normal variate with a mean of 30 and Standard deviation of 5. Find the probability: (Where values of Z at 0.8 = 0.2881, 1.0 = 0.3413, 2.0 = 0.4772, 3.0 = 0.4987). **5 Marks**

a) $26 \leq X \leq 40$

b) $X \geq 45$

c) $|X-30|>5$

Q-2. Calculate the Mean, Median, and Mode for the given grouped data. **5 Marks**

Marks Obtained	25-35	35-45	45-55	55-65	65-75	75-85
No. of Students	7	31	33	17	11	1

Q-3.: Consider the following system of linear equations: **5 Marks**

$2x + 3y = 6$

$4x - y = 5$

(a) Write the system in matrix form AX=B, where A is the coefficient matrix, X is the column matrix of variables and B is the column matrix of constants.

(b) Use matrix methods to solve for x and y. What are the values of x and y?

Q-4. Find the Eigen values and Eigen vectors of the matrix. **5 Marks**

$$\begin{bmatrix} 1 & 1 \\ 3 & -1 \end{bmatrix}$$