JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-2 EXAMINATION-2024

B.Tech-VII Semester (ECE)

COURSE CODE (CREDITS): 19B1WEC732 (03)   MAX. MARKS: 25

COURSE NAME: Pattern Analysis in Machine Intelligence

COURSE INSTRUCTORS: Dr. Vikas Baghel   MAX. TIME: 1 Hour 30 Minutes

Note:

(a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems.

Q.No	Question	CO	Marks
Q1	**a)** Given a dataset with the feature values [10, 20, 30, 40, 50] for a single feature. Apply Min-Max scaling to normalize the values to the range [0, 1].	CO-1	[1]
	b) If a dataset is divided into 5 folds for cross-validation, and a model achieved an accuracy of 80%, 85%, 78%, 90%, and 83% in each fold, calculate the average accuracy across all folds.		[2]
	c) Describe the differences between global and local feature extraction techniques in image processing. Provide examples of each type of feature extraction method.		[2]
Q2	**a)** Explain the assumption of feature independence in the context of the Naive Bayes Classifier. Why is this assumption made, and what are its implications?	CO-2	[2]
	b) Given a dataset with two features and two classes, calculate the posterior probabilities using Bayes' Theorem. Use hypothetical probabilities: P(Class A) = 0.6 P(Class B) = 0.4 P(Feature1|Class A) = 0.7 P(Feature1|Class B) = 0.2 P(Feature2|Class A) = 0.9 P(Feature2|Class B) = 0.1		[3]