

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER- VI EXAMINATION – SUMMER 2026

Subject Code:3164301

Date:03-06-2026

Subject Name:Machine Learning

Time:10:30 AM TO 01:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) How human learning is different from the machine learning.	03
	(b) Briefly discuss any two machine learning applications.	04
	(c) Why data preprocessing is important? Explain data pre-processing techniques.	07
Q.2	(a) How the data difficulties affect the performance of machine learning algorithm?	03
	(b) What are the different types of data used for machine learning?	04
	(c) What is supervised learning? Explain different phases of classification model.	07
	OR	
	(c) What is confusion matrix? List out and explain different performance parameters used for model evaluation with suitable example.	07
Q.3	(a) Explain K-fold cross validation.	03
	(b) Discuss feature extraction, feature selection and feature transformation.	04
	(c) Explain Monte Carlo Approximation.	07
	OR	
Q.3	(a) What is over fitting and under fitting?	03
	(b) What are the issues of high dimensional data? How to tackle them?	04
	(c) Explain central limit theory with its components.	07
Q.4	(a) Define null and alternate hypothesis.	03
	(b) Define probability, random variable, discrete & continuous distribution.	04
	(c) Write and explain Baye's theorem.	07
	OR	
Q.4	(a) What is hypothesis testing?	03
	(b) Differentiate supervised learning and unsupervised learning.	04
	(c) Explain Bayesian belief network and probability distribution table with suitable example.	07
Q.5	(a) What is association rule?	03
	(b) Differentiate linear and logistic regression.	04
	(c) What is clustering? Explain any one clustering algorithm.	07
	OR	
Q.5	(a) What is deep learning?	03
	(b) Explain activation function.	04
	(c) Discuss ANN architecture.	07
