

Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY
Bachelor of Vocation - SEMESTER - VI EXAMINATION - WINTER 2025

Subject Code: 21160201

Date: 11-11-2025

Subject Name: Introduction to AI & ML

Time: 02:30 PM TO 04:30 PM

Total Marks: 50

Instructions

- 1. Attempt all questions.**
- 2. Make Suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**
- 4. Use of simple calculators and non-programmable scientific calculators are permitted.**

	Marks
Q.1 (a) Answer the following:	05
1. Which logic is used in AI to represent knowledge?	
2. Which learning type uses unlabelled data?	
3. What is the output of Linear Regression?	
4. Which algorithm is used to minimize the cost function?	
5. Give one example of a clustering algorithm.	
(b) What is Artificial Intelligence? Explain with real-life examples.	05
Q.2 (a) Differentiate between Procedural and Declarative knowledge with examples.	05
(b) What is Predicate Logic? Why is it useful in AI?	05
OR	
(b) What is meant by AI techniques? Name any three techniques.	05
Q.3 (a) Explain Logic programming in detail.	05
(b) Differentiate between Regression and Classification problems with examples.	05
OR	
(a) Explain how machines learn from data in simple steps.	05
(b) What is the difference between Supervised Learning and Unsupervised Learning?	05
Q.4 (a) What is Machine Learning? Explain with two simple examples.	05
(b) Explain the concept of Linear Regression with one variable and give a real-life example.	05
OR	
(a) Describe the role of Gradient Descent in Linear Regression.	05
(b) Write the steps involved in applying Gradient Descent practically.	05
Q.5 (a) What is the hypothesis representation in Logistic Regression? How does it help in prediction?	05

(b) What is overfitting in Logistic Regression, and how can it affect the model's performance? **05**

OR

(a) Describe any two popular clustering algorithms and explain their use-cases. **05**

(b) What is clustering in machine learning? Explain its significance with an example. **05**
