

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2024****Subject Code:3171617****Date:19-11-2024****Subject Name: Applied 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 do Machine learn? **03**
 (b) Explain types of Machine Learning? **04**
 (c) What do you mean by a well-posed learning problem? Explain important features that are required to well-define a learning problem Explain with suitable example. **07**

- Q.2** (a) Define : Training set, validation set and Testing set **03**
 (b) What are the main activities involved when you are preparing to start with modeling in machine learning? **04**
 (c) Explain, in details, the process of evaluating the performance of a classification model. Explain the different parameters of measurement. **07**

OR

- (c) Assume the confusion matrix of win/loss prediction of cricket match problem to be as below and calculate Model accuracy, precision and recall. **07**

	Actual Win	Actual Loss
Predicted Win	85	4
Predicted Loss	2	9

- Q.3** (a) Differentiate between cross validation and bootstrapping. **03**
 (b) Define the terms: a) Nominal Data b) Ordinal Data **04**
 (c) Explain bias-variance trade-off in context of model fitting. **07**

OR

- Q.3** (a) State the merits and demerits of Bayes classifier. **03**
 (b) Define Covariance and Correlation. **04**
 (c) Can the performance of the learning model improved? If yes, explain how. **07**

- Q.4** (a) Define prior, posterior, and likelihood probability **03**
 (b) How to improve accuracy of the linear regression model? **04**
 (c) Explain SVM classification in detail. **07**

OR

- Q.4** (a) Define the terms MLE and MAP. **03**
 (b) Compare supervised learning and Unsupervised learning **04**
 (c) Explain Monte Carlo Approximation with suitable example. **07**

- Q.5** (a) Define RNN. **03**
 (b) Explain types of activation functions used in machine learning. **04**
 (c) What is Hypothesis? explain hypothesis testing. **07**

OR

- Q.5** (a) Define CNN. **03**
 (b) Explain Adversarial Attacks. **04**
 (c) Explain Generative Adversarial Networks in detail. **07**
