

Enrolment No./Seat No _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2024

Subject Code:3164205

Date:20-05-2024

Subject Name:Predictive Analytics

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) Define correlation. Enlist the importance of it. 03
(b) Differentiate supervised vs. unsupervised machine learning. 04
(c) i) Define logistic regression. Enlist and explain three types of it. 03
ii) Differentiate Ridge Regression vs. Lasso Regression 04
Q.2 (a) Define regression. Explain least-squares with suitable example. 03
(b) Differentiate predictive vs. descriptive model. 04
(c) Enlist and explain with formula three metrics for regression model evaluation. 07

OR

- (c) Write a detailed short note on Naïve Bayes classifier. 07
Q.3 (a) Explain hard-margin and soft-margin in SVM with diagram. 03
(b) Enlist and explain the steps of kNN algorithm. Explain the reason that why kNN is considered as a “Lazy Learner”. 04
(c) Write a short note on multiple linear regression. 07

OR

- Q.3** (a) Define the terms: 03
i) Bias ii) Variance iii) Cross validation
(b) Define bootstrapping. Enlist and explain the advantages of it. 04
(c) Define correlation. Calculate and interpret the correlation coefficient of the two variables below. 07

Person	Hours spent Studying	Exam Score
A	3	70
B	4	80
C	5	90

- Q.4** (a) Explain adaptive boosting. Enlist advantages of boosting. 03
(b) What does a generalized adaptive model do? Enlist the advantages of GAM. 04
(c) Explain CART algorithm in detail. 07

OR

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|------------|------------|--|-----------|
| Q.4 | (a) | Differentiate regression vs. classification. | 03 |
| | (b) | Write short note on an exponential loss used in Adaboost algorithm. | 04 |
| | (c) | Explain gradient boosting. How is it different from AdaBoost? | 07 |
| Q.5 | (a) | Explain the terms below with respect to association rule:
i) support ii) confidence iii) lift | 03 |
| | (b) | Explain clustering with suitable example. | 04 |
| | (c) | Write short note on decision tree with suitable example. | 07 |

OR

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|------------|------------|---|-----------|
| Q.5 | (a) | Write a flow chart of association rule mining. | 03 |
| | (b) | Enlist and explain various clustering methods in brief. | 04 |
| | (c) | Write short note on principal component analysis (PCA) with suitable example. | 07 |
