



RAN-2511000903011007

S.Y.B.C.A. (A.I. and Data Analytics) (Sem.-III) Examination November - 2025
303-05 : Major-I-Fundamentals Of Machine Learning (TH)

[Total Marks: 25

સૂચના : / Instructions

(1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.

Fill up strictly the above details on your answer book

Seat No.:

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Student's Signature

Q.1. A. Answer Following : (Any Four) (Select Most appropriate option)

4

- Which type of data can take any real value within a range?
 - Nominal
 - Discrete
 - Continuous
 - Ordinal
- Which plot is usually best for Univariate analysis of numerical data?
 - Boxplot
 - Scatterplot
 - Heatmap
 - Bar chart
- Which example best represents Supervised Learning?
 - Learning without labels
 - Learning through rewards
 - Predicting student marks using past data
 - Random guessing
- Which variable is considered dependent in a regression model?
 - Input variable
 - Predictor
 - Output variable
 - Independent variable
- If study hours and marks have positive covariance, then:
 - As study hours increase, marks decrease
 - As study hours increase, marks remain constant
 - As study hours increase, marks increase
 - Study hours do not impact marks

Q.1. B. Answer following in one Line : (Any Four)

4

- Give two benefits of Machine Learning.
- What is the importance of Data Collection in ML?
- How can outliers affect model performance?
- What is difference between dependent and independent variables?
- What is the equation of the Simple linear regression model?

Q.2. Answer Following:

- A.** Explain MSE(Mean square Error) and MAE(Mean Absolute Error). Differentiate them.

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OR

- A.** Write application areas of Machine learning.
B. Discuss Supervised Learning and its types.

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Q.3. Write short-notes: (Any Two)

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- 1) Model Evaluation in Regression: R^2 , MSE, and RMSE
 - 2) F1 score and its significance.
 - 3) Underfitting and Overfitting.
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