



RAN-2511000903011008 - C

B.C.A (Sem. - III) Examination December - 2025

303-05 : Fundamentals of Machine Learning (PR) (A.I. And Data Analytics)

Time: 2 Hours]

[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. Solve following problem: (10)

Create a CSV file named products.csv with the following attributes:
(Product_ID, Category, Price, Quantity, Rating).

Store at least 15 records. Perform EDA using Python:

1. Load dataset into dataframe.
2. Display first 10 rows.
3. Perform Univariate Analysis on Price.
4. Perform Bivariate Analysis between Price and Quantity using scatter plot.
5. Perform Multivariate Analysis by showing correlation among numerical attributes.

Q. 2. A car company wants to predict the mileage (km/1) of cars based on engine size (in CC). (10)

Dataset Dictionary:

```
data = {
  "Engine_Size": [800,1000,1200,1300,1500,1600,1800, 2000, 2200, 2400, 2500, 2700,
  3000, 3200, 3500],
  "Mileage": [22, 21, 20,19,18,17,16,15,14,13,13,12,11,10, 9]
}
```

Solve following:

- 1) Create DataFrame from dictionary.
- 2) Define Engine_Size as X and Mileage as Y.
- 3) Split dataset into training (80%) and test (20%).
- 4) Build a regression model.
- 5) Plot regression line on scatter plot.
- 6) Evaluate model using R^2 Score.

Q. 3. Viva-voce (05)