

RAN-2511000903011008 - E

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 weather.csv with attributes:
(Date, Temperature, Humidity, WindSpeed, Rainfall).
Store at least 20 records. Perform EDA:

1. Load dataset and display first 8 rows.
2. Univariate Analysis on Temperature.
3. Bivariate Analysis between Temperature and Humidity.
4. Multivariate Analysis : Show correlation among numerical attributes.
5. Detect outliers in Rainfall using boxplot.

Q. 2. A teacher wants to predict student scores based on study hours. (10)

Dataset Dictionary:

```
data = {
    "Study_Hours" : [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15],
    "Score" : [10, 20, 25, 35, 40, 45, 50, 60, 65, 70, 75, 80, 85, 90, 95]
}
```

Solve Following :

- 1) Take Study_Hours as X and Score as Y.
- 2) Split dataset into train and test sets.
- 3) Apply Linear Regression.
- 4) Predict student scores.
- 5) Plot regression line with scatter points.
- 6) Evaluate model performance.

Q. 3. Viva-voce (05)