



RAN-2511000903011008-B

B.C.A. (AI & Data Analytics)(Sem. - III) Examination December - 2025

303-05- Fundamentals of Machine Learning (PR)

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 **hospital.csv** with attributes:
(Patient_ID, Age, Gender, Disease, TreatmentCost, DaysAdmitted).
Store 25 records. Perform EDA:

1. Load dataset into dataframe.
2. Show top 5 records.
3. Univariate Analysis on TreatmentCost.
4. Bivariate Analysis between Age and TreatmentCost.
5. Multivariate Analysis (correlation among numerical attributes)

Q. 2 A company wants to predict an employee's salary based on years of experience. [10]

Dataset Dictionary:

```
data = {
    "Experience": [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15],
    "Salary": [25000, 28000, 32000, 35000, 40000, 45000, 50000,
               55000, 60000, 65000, 70000, 75000, 80000, 85000, 90000]
}
```

Solve Following:

- 1) Load dataset into Data Frame.
- 2) Take **Experience** as X and **Salary** as Y.
- 3) Split dataset into train and test sets.
- 4) Train Linear Regression model.
- 5) Predict salaries for test set.
- 6) Evaluate performance using **R² Score** and **MSE**.

Q. 3 Viva-voce [05]