

# END TERM EXAMINATION

FOURTH SEMESTER [BCA] MAY-JUNE, 2025

**Paper Code: BCAT-212**

**Subject: Introduction to Data Science**

**Time: 3 Hours**

**Maximum Marks: 60**

**Note: Attempt any five questions including Q.No.1 which is compulsory. Select one question from each unit.**

Q 1 Write short notes of the following:

- a) What is Data Science? (2)
- b) Differentiate between Data Analytics and Data Science? (3)
- c) How is Data Science different from traditional application programming? (3)
- d) Why is Python favored over other languages for Data Science? (2)
- e) How can we handle missing data? (2)
- f) How are Data Science and Machine Learning related to each other? (2)
- g) Why we need Data Frames? Give an example? (2)
- h) How we perform indexing and slicing? Give an example? (2)
- i) Does Data Science have power to predict the future? Justify? (2)

## UNIT-I

- Q2 (a) What are the factors involve in increases the evolution of Data Science? (5)
- (b) Discuss the applications of Data Science in various fields? (5)
- Q3 (a) What are Data collection strategies? (4)
- (b) Elaborate all stages of Data Pre-processing in data Science? (6)

## UNIT-II

- Q4 (a) Define the following terms:- (Any Three) (6)
- i) Skewness and Kurtosis,
  - ii) Box plots,
  - iii) pivot table,
  - iv) Linear regression
- (b) How central tendencies and Dispersion provides benefits to Data Science? (4)
- Q5 (a) Explain two types of statistics with an example? (4)
- (b) How does matplotlib and seaborn describes the functionality of stats in Data Science. (6)

## UNIT-III

- Q6 (a) Explain the following libraries: (Any Three) (6)
- i) Pandas,
  - ii) Numpy,
  - iii) Scipy,
  - iv) Tensor flow
- (b) Write a code to upload a CSV file by using pandas and Data Frames? (4)

## UNIT-IV

- Q8 a) How forecasting demand can be analyzed in data Science? (5)
- b) What are different patterns in data? Elaborate with an example? (5)

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- Q9 (a) Differentiate between categorical features and numerical feature with help of example? (4)
- (b) Perform case study on investigating clinical data by the following tasks- (6)
- (Assume values)
- i) Load the data
  - ii) Feature selection the dataset
  - iii) Censoring.

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