

Total No. of Questions : 5]

SEAT No. :

PF-12664

[Total No. of Pages : 2

[6648]-847

M.B.A.

MASTER OF BUSINESS ADMINISTRATION

SE BA 14 - Predictive Analytics and Machine learning using Python
(2024 Pattern) (Semester - IV)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) All questions are compulsory.
- 2) Draw a neat labelled diagram wherever necessary.

Q1) Solve any five :

[10]

- a) What is predictive analytics? [2]
- b) Give two applications of predictive analytics in business. [2]
- c) What is classification in predictive analytics? [2]
- d) Give one example of a classification problem. [2]
- e) Difference between a list and a tuple? [2]
- f) Explain indentation in Python with example. [2]
- g) Explain Pandas with example. [2]
- h) Why is EDA important? [2]

Q2) Solve any two :

[10]

- a) Explain different types of data in data pre-processing and discuss methods to handle missing values. [5]
- b) Explain how outliers and inconsistencies in data can be handled during preprocessing. [5]
- e) Differentiate between Label Encoding and One-Hot Encoding. When should each be used? [5]

P.T.O.

Q3) Solve any one :

[10]

- a) Explain the concept of Linear Regression. Discuss its assumptions, advantages, limitations and applications in predictive analytics.
- b) A healthcare dataset is used to predict whether a patient has a disease based on symptoms. Apply K-Nearest Neighbors (KNN) and explain the role of 'K'. Discuss how you would evaluate the model performance.

Q4) Solve any one .

[10]

- a) Describe the K-Nearest Neighbours (KNN) algorithm. How does the choice of K affect model performance?
- b) You are given a very large dataset. Compare the efficiency and scalability of K-Means and Hierarchical Clustering. Recommend the most suitable algorithm with justification.

Q5) Solve any one :

[10]

- a) A healthcare organization uses an ML model to predict patient readmission risk.

Discuss the privacy and ethical implications of using patient data and suggest measures to ensure responsible AI practices.

- b) A bank wants real-time fraud detection.

Design a predictive model pipeline using Python, explaining each stage from data input to final prediction.

