Exam.Code:0926
Sub. Code: 33616

2055

B.E. (Information Technology) Eighth Semester

OEIT-801: Business Intelligence and Data Analytics

Time allowed: 3 Hours Max. Marks: 50

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Answer the following

a) Define Business Intelligence.

b) What is a Data Warehouse?

c) Name one difference between OLTP and OLAP.

d) What is a Data Cube used for?

e) Define Data Summarization.

f) What is the role of data pre-processing in data mining?

g) Name one purity measure used in decision trees.

h) What is the basic idea behind K-means clustering?

i) Define Backpropagation in ANN.

j) Mention one real-world application of classification. (10×1)

UNIT - I

II.

a) Explain the architecture of Business Intelligence and Analytics. What are the key components involved?

b) A retail company wants to transition from traditional reporting to analytics-based decision-making. Discuss the components of BIA technical architecture it must implement and how these components interrelate. (2×5)

III.

a) What is OLTP? Discuss the main characteristics and uses in data management systems.

b) Given a large sales dataset, explain how you would apply data warehousing and OLAP to enable regional managers to explore seasonal trends across products and locations. (2×5)

IV.

a) A financial analyst is provided a messy dataset for predicting market movements using regression. Describe the data pre-processing steps you would take to ensure quality input for the regression model.

b) Describe the steps involved in the data mining process. Highlight the importance of data quality and pre-processing. (2×5)

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UNIT - II

V.

a) A credit card company wants to implement a fraud detection system. Which classification techniques would you suggest and how would you evaluate their performance?

b) Discuss how decision trees are built using tree induction and explain the need for pruning. (2×5)

VI.

a) Describe the working of the K-means algorithm. How is the quality of a cluster evaluated?

b) An e-commerce platform needs to segment its users for targeted marketing. Discuss how you would apply clustering and what measures you'd use to evaluate the cluster quality. (2×5)

VII.

a) What is an Artificial Neural Network (ANN)? Describe its architecture and the training process using backpropagation.

b) A stock market analytics company wants to forecast future stock prices using ANN. Explain how financial time series data can be modeled using ANN, including training and topology considerations. (2×5)

x-x-x