

(3 Hours)

80 Marks

- N.B.: (1) Q.1 is compulsory.
 (2) Attempt any three out of remaining five.
 (3) Figures to the right indicate full marks.

- 1 A) What is Business Intelligence? Explain in detail Business intelligence architecture and applications. [10]
 B) Describe in detail Data warehouse architecture and ETL process. [10]
 2 A) Explain the difference between [10]
 1. ROLAP Vs MOLAP
 2. Operational System vs Information System
 B) What is classification? Explain in detail CART method. [10]
 3 A) Discuss agglomerative and divisive hierarchical clustering using suitable example. [10]
 B) Consider the following table for the various symptoms found in some patients [10]

Irritation in eye and ears	Throat infection	Headache	Fever	Viral infection
y	n	medium	y	N
y	y	no	n	Y
y	n	high	y	Y
n	y	medium	y	y
n	n	no	n	n
n	y	high	y	y
N	y	high	n	n
y	y	medium	y	y

Use Bayes Classification to conclude that the patient with the following symptoms has the viral infection?

Irritation in eye and ears	Throat infection	Headache	Fever	Viral infection
y	n	medium	y	?

- 4 A) Explain the concept of a data-cube as a multi-dimensional data model. What is the role of concept hierarchies in defining the dimensions of a data-cube? Illustrate, with an example. [10]
 B) What is regression? How can linear regression be used for prediction. [10]
 5 A) Explain text mining and discuss in brief the information retrieval methods [10]
 B) Write the algorithm for K-Means Clustering. Generate the clusters using K-Means Clustering (K = 2) [10]

Object	Attribute1 (X): weight index	Attribute 2 (Y): pH
Medicine A	1	1
Medicine B	2	1
Medicine C	4	3
Medicine D	5	4

- 6A) What is Market Basket Analysis? Find out strong association rule form the given example using apriori algorithm with the support of 50% and confidence of 70% [10]

Trans_Id	Item
1.	Laptop, Mouse, Headphones, Pendrive, Speakers
2.	Laptop, Headphones
3.	Laptop, Mouse, Pendrive
4.	Mouse, Speakers
5.	Laptop, Pendrive

- B) Write a short note on **any two** the following: [10]
- Balanced Score Card
 - Incremental ARM
 - KDD process
