

BACHELOR OF TECHNOLOGY (CBCS) (2020 COURSE)
B.Tech.Sem - VII INFORMATION TECHNOLOGY : WINTER : 2024
SUBJECT: BUSINESS INTELLIGENCE

Day : Thursday
Date : 05/12/2024

W-24758-2024

Time : 02:30 PM-05:30 PM
Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate **FULL** marks.
- 3) Assume suitable data **WHEREVER** necessary.
- 4) Draw neat diagrams **WHEREVER** necessary.

Q.1 Discuss the DIKW (Data-Information-Knowledge-Wisdom) pyramid in detail, highlighting its key components and their interrelationships. Explain the significance of each level in the context of data management and decision making. **(10)**

OR

Q.1 Data preprocessing is a crucial step in the data analysis pipeline. Discuss the importance of data preprocessing in the context of machine learning and data analytics. Outline at least five common data preprocessing techniques, explaining how each technique helps in improving the quality and usability of data for analysis. Provide real-world examples or scenarios where each technique would be applied. **(10)**

Q.2 Explain the concept of a data warehouse and its significance in facilitating decision making within organizations. Discuss the key components of data warehouse architecture, highlighting the functions and interactions of each component. Furthermore, elaborate on the process of data extraction, transformation and loading (ETL) in populating a data warehouse. **(10)**

OR

Q.2 Explain the concept of a data cube and its role in multidimensional data analysis. Discuss the process of data cube computation, including the generation of dimensions, measures and aggregation functions. **(10)**

Q.3 Discuss the importance of hypothesis testing in the context of scientific research and decision making in various fields. Explain the key components of hypothesis testing, including null and alternative hypotheses, significance level, test statistics and p-value. **(10)**

OR

Q.3 In the population, the average IQ is 100 with a standard deviation of 15. A team of scientists want to test a new medication to see if it has either a positive or negative effect on intelligence or not effect at all. Sample of 30 participants who have taken the medication has a mean of 140. Did the medication affect intelligence? **(10)**

Q.4 What are the different methods of visualization? Explain any one in detail. What is Dashboard? **(10)**

OR

Q.4 Describe main architecture of the dashboard. **(10)**

Q.5 What are components of Time Series Analysis? What are steps to analyse time series? **(10)**

OR

Q.5 What are different methods to convert Non-Stationary data type into Stationary data type? Explain any one in detail. **(10)**

Q.6 Write note on Business Intelligence (BI) applications in Marketing. **(10)**

OR

Q.6 Compare BI with Data Analytics. **(10)**
