

[Total Marks: 75]

2½ Hours)

- N. B.: (1) **All** questions are **compulsory**.  
 (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.  
 (3) Answers to the **same question** must be **written together**.  
 (4) Numbers to the **right** indicate **marks**.  
 (5) Draw **neat labeled diagrams** wherever **necessary**.  
 (6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt any three of the following:** 15
  - a. Explain the term Business Intelligence and list its advantages.
  - b. Differentiate between data, information, and knowledge.
  - c. Draw and explain the phases of Business Intelligence.
  - d. Explain the key stages of the decision-making process in detail.
  - e. Discuss the historical development of Information Systems in brief.
  - f. Describe the different phases involved in a Decision Support System.
  
2. **Attempt any three of the following:** 15
  - a. What are the key steps in developing a mathematical model?
  - b. Discuss Corporate Analysis and Risk Management in brief.
  - c. Explain the architecture of data mining with the help of a diagram.
  - d. How does data preparation improve the accuracy of data analysis?
  - e. Describe the process of Data Transformation with an appropriate diagram.
  - f. Write a concise explanation of Data Validation and its importance.
  
3. **Attempt any three of the following:** 15
  - a. Describe the essential components involved in a classification problem.
  - b. Explain the criteria used to evaluate a classification method.
  - c. How is clustering different from classification?
  - d. Explain logistic regression briefly.
  - e. What is the K-medoids clustering algorithm?
  - f. Describe one **real-life** application of clustering.
  
4. **Attempt any three of the following:** 15
  - a. Define and describe a Management Information System.
  - b. Define relational marketing and discuss the factors related to it.
  - c. Explain how decisions are made in sales force management.
  - d. Describe supply chain optimization.
  - e. What is revenue management system?
  - f. Why is efficiency analysis important in business operations?

5. Attempt any three of the following:
- Describe the metrics used in Knowledge Management.
  - Differentiate between human intelligence and artificial intelligence.
  - Discuss the detailed applications of expert systems across different domains.
  - Explain the different stages of machine learning.
  - Write a concise note on TensorFlow and its key features.
  - How effective is machine learning in predictive analysis?
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