

(2½ Hours)

[Total Marks: 75]

- 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**

- What is business intelligence? Explain architecture of the business intelligence.
- Explain different phases in development business intelligence system.
- What is decision support system (DSS)? What are the factors that affect the degree of success of the DSS?
- Explain classification of decisions according to their nature and scope.
- Define system. Explain closed cycle and open cycle system with suitable example.
- Describe different phases in the development of a decision support systems(DSS).

2. Attempt any three of the following:**15**

- What are the phases in the development of mathematical models for decision making?
- Explain the divisions of mathematical models according to their characteristics, probabilistic nature, temporal dimension.
- What is data mining? List the real life applications of data mining.
- Explain categorical and numerical attributes with proper example.
- Differentiate between supervised and unsupervised learning.
- Explain the following normalization techniques:
 - Decimal scaling
 - Min-max

3. Attempt any three of the following:**15**

- What are the criteria used to evaluate classification methods?
- Explain top-down induction of decision tree. Examine the components of the top-down induction of decision trees procedure.
- Write a short note on Naïve Bayesian classifiers.
- Write k-means algorithm for clustering.
- Explain the 'Rosenblatt perceptron' form of neural network with diagram.
- Write a short note on confusion matrix.

4. Attempt any three of the following:**15**

- Write a short note on market basket analysis.
- What is use of web mining methods? What are the different purposes of web mining?
- Explain "tactical planning" optimization model for logistics planning.
- Explain the Charnes–Cooper–Rhodes (CCR) model.
- Write a short note on efficient frontier.
- What is relational marketing? What are the data mining applications in the field of relational marketing?

5. Attempt any three of the following:

15

- a. Define knowledge management. What are data, information and knowledge?
 - b. Describe the knowledge management system (KMS) cycle.
 - c. Describe how AI and intelligent agents support knowledge management. Relate XML to knowledge management and knowledge portals.
 - d. List and explain characteristics of artificial intelligence.
 - e. What is knowledge engineering? Explain the process of knowledge engineering.
 - f. What are the areas for expert system applications?
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