

**Time: 2 1/2 Hours**

**Marks 60**

**N.B.**

- 1) All questions are compulsory.
- 2) Figures to the right indicate marks.
- 3) Illustration, depth answers and diagram will be appreciated.
- 4) Mixing of sub-questions is not allowed.
- 5) Each question carries 5 marks.

- Q.1** Attempt **Any Two** of the following: **12 Marks**
- a) Briefly explain Data warehousing.
  - b) Explain Business intelligence architecture components with diagram
  - c) Give the pros and cons of KDD.
  - d) Explain Business Intelligence.
- Q.2** Attempt **Any Two** of the following: **12 Marks**
- a) Differentiate among a data mart, an ODS, and an EDW.
  - b) Explain the different types of Smoothing with examples?
  - c) How does a data warehouse differ from a database?
  - d) What is Normalization? What are the types Normalization?
- Q.3** Attempt **Any Two** of the following: **12 Marks**
- a) Explain the importance of metadata.
  - b) Describe the major components of a data warehouse.
  - c) Identify and discuss the role of middleware tools.
  - d) State the applications of data mining.
- Q.4** Attempt **Any Two** of the following: **12 Marks**
- a) Explain the terms: Frequent Itemsets, Closed Itemsets and Association Rule
  - b) Explain the techniques to improve efficiency of Apriori Mining
  - c) Explain multidimensional and multilevel association rules with example.
  - d) Explain FP-Growth algorithm with its advantages and disadvantages
- Q.5** Attempt **Any Three** of the following: **12 Marks**
- a) Write short notes on: a. Data b. Information c. Knowledge
  - b) Explain the different types of Smoothing with examples?
  - c) Explain Data Mining Architecture.
  - d) Explain the techniques to improve efficiency of Apriori Mining.

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