

Time: 2 1/2 Hours

75 Marks

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 Three of the following:**

15 Marks

- a) Explain Business Intelligence.
- b) Write short notes on: a. Data b. Information c. Knowledge
- c) Explain Business intelligence architecture components with diagram.
- d) What is KDD? Explain the process of KDD in detail.
- e) What is Noisy data?
- f) Write a note on data smoothing.

**Q.2 Attempt Any Three of the following:**

15 Marks

- a) Explain in detail regression, clustering and sampling methods
- b) What is Normalization? Explain 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> Normalization?
- c) What is a data warehouse?
- d) What is an ODS?
- e) Explain the importance of metadata
- f) Describe the major components of a data warehouse

**Q.3 Attempt Any Three of the following:**

15 Marks

- a) Identify and discuss the role of middleware tools.
- b) Explain Data Mining Architecture
- c) Explain the issues in data mining
- d) State the applications of data mining
- e) Differentiate Data mining and data warehouse
- f) Identify and discuss the role of middleware tools.

**Q.4 Attempt Any Three of the following:**

15 Marks

- a) Explain Market Basket Analysis with an example
- b) Explain Apriori algorithm with its advantages and disadvantages.
- c) Explain the techniques to improve efficiency of Apriori Minin
- d) Explain FP-Growth algorithm with its advantages and disadvantages
- e) Explain multidimensional and multilevel association rules with example.
- f) Explain the terms: Frequent Itemsets, Closed Itemsets and Association Rule

**Q.5** Attempt **Any Three** of the following: **15 Marks**

- a) Explain in detail Business Intelligence Operational and Decision Support System
- b) Explain in detail regression, clustering and sampling methods.
- c) Explain the importance of metadata.
- d) How does a data warehouse differ from a database?
- e) What are mining multilevel association rules?
- f) What are disadvantages of FP Growth Algorithm

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