

7. What is Data Pre-processing ? What are the various Steps of Data Pre-processing ? Discuss about data cleaning techniques. **16**

Unit IV

8. What is the process of Classification ? Compare it with prediction. Explain induction tree method of classification. **16**
9. Explain the following :
- (a) Hierarchical Clustering
 - (b) Spatial Data Mining. **16**

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Roll No.

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M. Sc. (Computer Science

EXAMINATION, 2023

(Fourth Semester)

DATA WAREHOUSE AND DATA MINING

Code : 17MCS24DA1

Time : 3 Hours

Maximum Marks : 80

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

- 1.** (a) Define data warehouse and its characteristics.

- (b) What is the ETL process in warehouse construction ?
- (c) What is Curse of Dimensionality Problem?
- (d) What is an outlier ?
- (e) Define confidence of an association rule.
- (f) How binning can handle noisy data ?
- (g) Define classifier accuracy.
- (h) How is prediction different from classification ? **16**

Unit I

- 2. Explain about various types of data warehouse in detail-Enterprise Data Warehouse, Virtual warehouse and Data Marts. Also differentiate between Enterprise Data warehouse and Virtual Warehouse. **16**
- 3. Explain about various warehouse schemas--star, snowflake, galaxy with the help of diagrammatical notation in detail. Out of these which one is the best and why. **16**

Unit II

- 4. (a) Explain various OLAP operations with the help of illustrative examples. **8**
- (b) Contrast the differences between OLAP and OLTP systems. **8**
- 5. (a) What is a Data Cube and a lattice ? Explain with the help of example. What is efficient computation of Data Cubes ? **8**
- (b) What do you understand by ROLAP servers ? How do you compare it with MOLAP and HOLAP Servers along with justifications ? **8**

Unit III

- 6. (a) Describe the various phases in knowledge discovery process with a neat diagram. **8**
- (b) What are the various methods of mining Multi-level Association rule mining from relational databases and data warehouse ? **8**