[Total No. of (i) Printed Pages 4 (ii) Questions 9]

Sub Code : 3614 (1048) **Exam Code :** 0460

Exam : M.Sc. Information Technology
2nd Semester

Subject : Advanced Database Programming and MySQL

Paper : Paper-M.S-60

Time : 3 Hours ***Maximum Marks : 80***

Note: Attempt **five** questions in all, by selecting the **compulsory** question and at least **one** question from each **unit**.

COMPULSORY QUESTION

1. (a) What is data dictionary ? What is its need ? 2

(b) What do you understand by relationship attributes ? Give example. 2

(c) Give example of a multi-valued dependency. 2

(d) What do you understand by intersection operation in relational algebra ? Give example. 2

P.T.O.

(e) What do you understand by atomicity property of a transaction ? 2

(f) Write MySQL statement to add a column *gender* in a table *student*. 2

(g) What is the purpose of Apriori Algorithm ? 2

(h) What are data marts ? 2

UNIT - I

2. (a) Discuss the main characteristics of the database approach and how it differs from the traditional file oriented approach ? 8

(b) Draw and explain ER diagrams for a Hotel Management System. Appropriately assume any required information yourself. 8

3. (a) Define 2NF and 3NF. Also discuss the insertion, deletion and modification anomalies that can be there in a 2NF table if it is not decomposed to 3NF. Appropriately assume any required information yourself. 10

(b) Explain the concept of Aggregation in ER modeling with the help of a suitable example. 6

UNIT - II

4. (a) Explain the following operations of Relational Algebra with the help of suitable examples :

SELECT, PROJECT, UNION, DIFFERENCE 12

(b) Briefly discuss different states of a transaction. 4

5. (a) Explain and differentiate between tuple relational and domain relational calculus. 8

(b) What do you understand by concurrency control ? Compare lock-based techniques for concurrency control with timestamp based protocols. 8

UNIT - III

6. (a) List any four major features of MySQL. 4

(b) Give a diagrammatical representation of MySQL's logical architecture. 4

(c) How database can be created, selected, dropped and altered in MySQL ? Discuss with suitable examples. 8

7. Writes notes in the following :

(a) Using different types of Joins in MySQL 8

(b) Using Views in MySQL 8

UNIT - IV

8. (a) Write a short note on the evolution of data warehousing. 4

(b) What are the major challenges in building a data warehouse ? 6

(c) Briefly discuss the major components of a data warehouse. 6

9. (a) What is Data Mining ? What are its goals ? Discuss in detail. 8

(b) What is a Decision Tree ? Discuss the applications of Decision Trees in Data Mining with the help of suitable examples. 8