

Roll No.13.....

Exam Code : M-23

Subject Code—59338

B.Sc. EXAMINATION

(Main & Reappear)

(Batch 2018 Onwards)

(Fourth Semester)

COMPUTER APPLICATIONS

CCaL-404

Database Management System

Time : 3 Hours

Maximum Marks : 80

Note : There are nine questions in all. Q. No. 1 is compulsory. Attempt remaining *four* questions selecting *one* question from each Unit. All questions carry equal marks.

1. (a) Define DBMS.
- (b) Write any *two* demerits of a DBMS.
- (c) What is a relation in an ER diagram ?

- (d) Define cardinality ratio.
- (e) Why a relational database management system is named so ? Does a relation and a table represent similar thing in a RDBMS ?
- (f) What is a foreign key ?
- (g) Write any two example DML queries in SQL.
- (h) What is a lossless decomposition ?

2×8=16

Unit I

2. (a) How database system is more efficient approach than file processing system ?
 - (b) List and explain database characteristics.
- 8,8
3. (a) Briefly explain the 3-tier architecture of a database system.
 - (b) Define the following terms : Instance, Schema, Abstraction and Data Integration.
- 8,8

Unit II

4. What does an ER diagram denote ? State and explain each constituent of an E-R diagram by taking a suitable example. 16
5. (a) What is the degree of a Relationship ?
(b) Explain a Participation Constraint in an E-R diagram.
(c) What are Weak entities ? Give example. 6,6,4

Unit III

6. Explain the basic concepts of a Relational data model including domains, attributes, tuples and relations. Also explain the key constraints in detail. 16
7. (a) Explain the referential integrity constraint with example. 8
(b) What is relational algebra ? Explain selection and projection operations with examples. 8

Unit IV

8. How are the E-R Model and the Relational model related to each other ? Explain the mapping between these two models in detail.

16

9. Write short notes on the following :

- (i) Functional dependencies and Normalization 8
- (ii) DDL commands in SQL. 8