

7. (a) Write in detail about different types of constraints that can be specified on a relation.
- (b) Explain the concept of Selection and Projection in Relational Algebra. **8+8**

Unit IV

8. (a) List and explain the inference rules of functional dependencies.
- (b) Write a short note on Normalization. **8+8**
9. (a) List and explain aggregate functions used in SQL with examples.
- (b) Illustrate the usage of SQL GROUP BY, ORDER BY and HAVING clauses. **8+8**

Roll No.

Exam Code : J-21

Subject Code—52560

B.Sc. EXAMINATION

(Main/Reappear) (Batch 2018 Onwards)

(Third Semester)

COMPUTER SCIENCE

CCsL-304 (Course V)

Database Management System

Time : 3 Hours

Maximum Marks : 80

Note : Attempt any *Five* questions. Q. No. **1** is compulsory. All questions carry equal marks.

1. (a) Write down any *two* responsibilities of DBA.
- (b) What is the instance of a relation ?
- (c) Distinguish between primary and super keys.

- (d) List the various data types available in SQL.
- (e) Explain briefly the importance of Data Independence.
- (f) What do you mean by the term Loss-less Decomposition ?
- (g) Differentiate between DBMS and RDBMS (any *two*).
- (h) Define the terms Domain and Tuple.

2×8=16

Unit I

- 2. (a) Explain in brief about the historical perspective of Database Management System. Also, discuss about the role of data management in modern information systems.
- (b) Write a short note on Abstraction and Data Integration. **8+8**
- 3. Define a Database Model. Explain various types of database models in detail. **16**

Unit II

- 4. (a) Explain about various constraints used in ER-Model.
- (b) What is an attribute ? What do you understand by term attribute value ? Also, explain different types of attributes. **8+8**
- 5. (a) What do you understand by relationship type and degree of relation type ? Explain the differences among a relationship instance, a relationship type and a relationship set.
- (b) Write short notes on the following :
 - (i) Entity *versus* Attributes
 - (ii) Entity *versus* Relationship. **8+8**

Unit III

- 6. (a) How do we represent null values ? Discuss the importance of handling null values.
- (b) What is Joint Operation ? Explain in detail different variants of join operation. **8+8**