

B.E. / B.Tech. Computer Science & Engineering (Model Curriculum) Semester-V
TEE102CS - Database Management System

P. Pages : 2

Time : Three Hours



GUG/W/24/13812

Max. Marks : 80

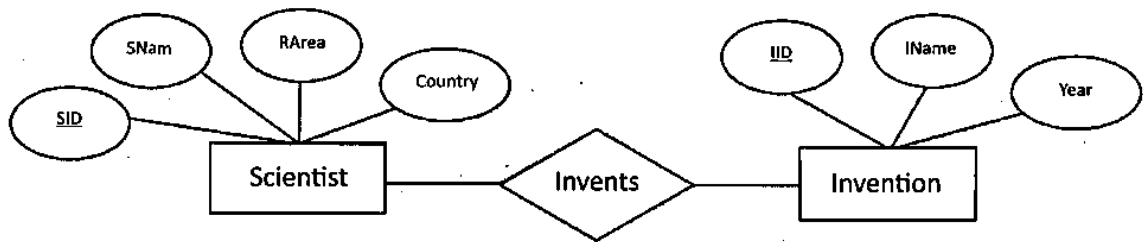
- Notes :
1. All questions carry equal marks.
 2. Illustrate your answers wherever necessary with the help of neat sketches.
 3. All questions are compulsory.

1. a) Explain the following types of databases in detail: 8
- i) Centralized database
 - ii) Distributed database
 - iii) Relational database

- b) Explain types of DBMS architecture with neat diagrams. 8

OR

2. a) Convert the following ER diagram to relational schema: 8



(Note: Relationship is many to many).

- b) Explain EER diagram with generalization, specialization and aggregation. 8

3. a) Explain relational calculus and its types in detail. 8

- b) Explain triggers in DBMS with suitable example. 8

OR

4. a) Consider the following relation and write the queries with explanation for each. 8

Emp

Eid	Ename	dept	salary
1	Ram	HR	10,000
2	Ankit	MRKT	20,000
3	Ravi	HR	30,000
4	Nitin	MRKT	40,000
5	Varun	IT	50,000

Project

Eid	Pid	Pname	location
1	P1	IOT	Bangalore
5	P2	Bigdata	Delhi
3	P3	Retail	Mumbai
4	P4	Android	Hyderabad

- i) Write a SQL query to display second highest salary.
- ii) Write a SQL query to display maximum salary.
- iii) Write a SQL query to display all dept names along with number of employees working in that
- iv) Find the name of emp who are working in on a project.

- b) Explain join operation and its types with example. 8
5. a) What is normalization? Explain need of normalization with an example. 8
- b) Consider the following relation R (A, B, C, D, E) and Functional dependencies:
 $\{A \rightarrow B, B \rightarrow C, C \rightarrow D, D \rightarrow A\}$
 Calculate the number of Candidate keys in the relation and state the Prime attributes. 8

OR

6. a) Check the relation for its highest normal form:
 R(A, B, C, D, E) and FD: $\{A \rightarrow BC, BC \rightarrow AD, D \rightarrow E\}$ 8
- b) What is minimal cover and find the minimal cover set of Functional dependencies given:
 $\{A \rightarrow BC, B \rightarrow C, AB \rightarrow D\}$ 8
7. a) Explain lock-based protocol scheme of concurrency control. 8
- b) Explain transaction and its states in dbms with neat sketch. 8

OR

8. a) Explain the following schedules in detail: 8
 i) Recoverable schedules
 ii) Cascade less schedules.
- b) Explain log-based recovery in DBMS. 8
9. a) Explain OLAP. 8
- b) Explain distributed systems with following points: 8
 i) Define distributed system with diagram.
 ii) Give an example for distributed system.
 iii) Implementation issues.

OR

10. a) What is data warehouse? State and explain its components in detail. 8
- b) Explain mining and classification. 8
