B.E. Computer Technology Seven Semester

CT703 - Database Management Systems

P. Pages : 2 **GUG/W/18/1858**

Time : Three Hours * 1 4 4 8 * Max. Marks : 80

Notes : 1. All questions carry equal marks.
2. Assume suitable data wherever necessary.
3. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Discuss the various database languages. **8**

b) Define the terms : **8**
i) Database instance ii) Database schema
iii) Physical data independence iv) Logical data independence

OR

2. Explain the architecture of database management system. **16**

3. a) What is mapping cardinality ? Discuss the various types of mapping cardinalities. **8**

b) Construct an ER-diagram for a car insurance company that has a set of customers, each of whom owns one or more cars. Each car has associated with it zero to any number of recorded accidents. **8**

OR

4. a) Set R = (A, B, C) and lit r_1 and r_2 both be relations on schema R. Give an expression in SQL that is equivalent to each of the following queries. **8**
i) $r_1 \cup r_2$ ii) $r_1 \cap r_2$
iii) $r_1 - r_2$ iv) $\Pi_{AB(r_1)} \bowtie \Pi_{BC(r_2)}$

b) Discuss the aggregate functions used in Sql along with group by and having clause. **8**

5. a) Compute the closure of functions dependencies F^+ for gives relation schema R = (A, B, C, G, H, I) and the sit of functional dependencies. **8**
$A \rightarrow B$
$A \rightarrow C$
$CG \rightarrow H$
$CG \rightarrow I$
$B \rightarrow H$

b) What are the various update anomalies ? Explain with example. **8**

OR

6. a) Discuss Boyce Codd normal form with example. **8**

b) Write note on : **8**

i) Full functional dependencies.

ii) Partial functional dependencies.

iii) Transitive functional dependencies.

7. a) How atomicity and durability of a transaction is implemented ? Explain. **8**

b) Define the terms : **8**

i) Serial schedule ii) Non-serial schedule
iii) Serializable schedule iv) Conflict serializable schedule

OR

8. a) What is a recoverable schedule ? Why is recoverability of schedules desirable ? Are there any circumstances under which it would be desirable to allow non recoverable schedules ? Explain your answer. **8**

b) Explain the state diagram of transaction. **8**

9. a) Explain distributed database system. **8**

b) Discuss the Parallel database system. **8**

OR

10. Write short note on : **16**

i) Spatial database.

ii) Multi media database system.

iii) Client server systems.

iv) Centralized systems.

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