

Roll No.: 198230007

Total No. of Questions : 11 [Total No. of Printed Pages : 4]

EG-212

**B.E. III Semester (CGPA) CSE
Examination 2018**

DATABASE MANAGEMENT SYSTEM

Paper - CS-304

Time Allowed : Three Hours [Maximum Marks : 60]

Note : Total No. of questions 11. Question 1 is compulsory. Attempt one question (including all parts) from each unit. Assume missing data, if any.

Q.1. Explain the following questions in brief.

5×2=10

- Define Schemas
- Functions of DBA
- What is Metadata?
- What is Generalization / Specialization?
- RDBMS

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Unit - I

- Q.2. a) Explain the following . 5
- Aggregation
 - Strong and Weak entity set
- b) Write the difference between Database system and file system. 5

OR

- Q.3. a) Compare different types of database models. 5
- b) Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted? 5

Unit - II

- Q.4. a) Define domain integrity constraint entity integrity constraint and referential integrity constraint. 5
- b) What is entity and attribute? Explain the entity types. 5

OR

- Q.5. a) Explain Network Data Model with its advantages and disadvantages. 5
- b) Define Super key, Candidate key, Primary key and foreign key. 5

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Unit - III

- Q.6. a) Represent the natural join operation of the relational algebra as a combination of Cartesian product, selection and projection operation. 5
b) What is Query Processing? Explain the steps involve in Query Processing. 5

OR

- Q.7. a) Explain the following : 5
i) QUEL ii) QBE
b) Differentiate between relational calculus and relational algebra. 5

Unit - IV

- Q.8. a) What is normalization? Explain 1NF and 2NF in brief. 5
b) Consider the following relation: 5
CAR_SALE (Car#, Date_sold, Salesman#, Commission% Discount_amt) Assume that a car may be sold by multiple salesmen, and hence {Car#, Salesman#} is the primary key. Additional dependencies are Date_Sold \rightarrow Discount_amt and Salesman# \rightarrow Commission%
Based on the given primary key, is this relation is 1NF, 2NF or 3NF? Why or why not? How would you successively normalize it completely?

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OR

- Q.9. a) Explain Multivalued dependencies and also describe 4NF with appropriate example. 5
b) Consider the relation schema R (P, Q, R, S) and the functional Dependencies $PQ \rightarrow R$, $R \rightarrow S$ and $S \rightarrow P$ holds on R. List all the keys of relation R. 5

Unit - V

- Q.10. a) Explain concurrency control and recovery in distributed database management system. 5
b) What is Distributed Database? Explain its security mechanism. 5

OR

- Q.11. a) Compare the deferred modification and immediate modification technique of the log based recovery scheme for concurrent transactions? Why and how check points are used to perform such log-based recovery. 5
b) Define a Schedule. Differentiate between serial and serializable schedule. 5

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