

Code: 9A05401

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B.Tech IV Year II Semester (R09) Regular Examinations, March/April 2013

DATABASE MANAGEMENT SYSTEMS

(Electronics and Control Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) What are the problems of file system? Explain.
(b) Explain the object-oriented model with example.
- 2 (a) What are the differences between composite and simple attributes? Explain with examples.
(b) Distinguish between primary key and foreign key with example.
- 3 (a) What are the differences between select and project operations? Explain with examples.
(b) Discuss about 1:M and M:N relationships with examples.
- 4 (a) What are the aggregate functions that are used in advanced select queries?
(b) Explain about an oracle sequence with syntax and example.
- 5 (a) What is Normalization? Give different types of normalization?
(b) What are the advantages of normalized relations over the un-normalized relation?
- 6 (a) What are the levels that are used in the concept of lock granularity? Explain.
(b) What are acid properties? Explain.
- 7 (a) What is immediate database modification and deferred database modifications? Explain.
(b) Explain about the concept recovery with concurrency transaction.
- 8 Describe the important means of file organization.

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- 1 (a) Explain the database system environment with a neat diagram.
(b) What are the advantages of external model? Explain.
- 2 (a) List and explain steps to develop an ER diagram for an university.
(b) What is an overlapping sub type? Give an example.
- 3 (a) What are the integrity rules that are used for the relational database model? Explain with an example.
(b) Explain about the 1:1 and 1:M relationships in relational database.
- 4 (a) Explain about the rule of precedence.
(b) What is a virtual table? Explain how to create a view.
- 5 (a) Show that if a relation schema is in BCNF, then it is in 3 NF, but if a relation schema is in 3 NF then it is not necessary in BCNF. Explain with an example.
(b) What are the Anomalies in BCNF?
- 6 (a) Explain the terms binary lock, shared lock/exclusive lock.
(b) Explain about lock granularity and lock types in concurrency control.
- 7 (a) Explain how the immediate database modification and deferred database modification are used?
(b) Discuss how the recovery can be done with concurrent transaction.
- 8 Explain the method of invented file organization.

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- 1 (a) Explain object oriented model and network model in degrees of data abstraction.
(b) What are the functionalities of data base administrator?
- 2 (a) What are the differences in binary and ternary relationships? Explain with examples.
(b) What is aggregation? When is it useful?
- 3 (a) What is an index? What are the components of an index?
(b) Discuss about any two relationships in relational database.
- 4 (a) What is the purpose of a trigger? Explain with example.
(b) Explain about arithmetic and logical operators in SQL.
- 5 (a) Describe the characteristics of a table that is not in normalized form. Describe how such a table is converted to a first normal form relation.
(b) What do you understand by attribute closure? Give an example.
- 6 What are the ways to control the concurrency in the transaction management explain in details?
- 7 (a) What is restart recovery and logical undo logging? Explain.
(b) Explain how the recovery can be done with concurrent transaction.
- 8 Explain about invented file organization.

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- 1 (a) What are the main components of data base system? Explain.
(b) What is internal model? Give an example.
- 2 (a) Explain about specialization and generalization constraints.
(b) Compare and explain single valued and multi valued attributes.
- 3 (a) Explain about data dictionary and system catalog.
(b) List and explain the relational set operators used in relational database.
- 4 (a) What is the difference between UNION and UNIONALL set operators? Explain with syntax.
(b) Create a table and display all the columns in that table using where condition.
- 5 (a) What is meant by the completeness and soundness of Armstrong's interference rules?
(b) Consider a relation R {A, B, C, D, E} with the following dependencies. $AB \rightarrow C$, $CD \rightarrow E$, $DE \rightarrow B$ is AB a candidate key of this relation? If not, is ABD? Explain your answer.
- 6 (a) How the concurrency can be controlled using optimistic method? Explain.
(b) Explain about database recovery management.
- 7 (a) Explain about failure with loss of nonvolatile storage.
(b) Describe the terms log record buffering and database buffering.
- 8 What is RAID? Discuss.
