

Code: 9A05401

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B.Tech II Year II Semester (R09) Regular & Supplementary Examinations, April/May 2013

DATABASE MANAGEMENT SYSTEMS

(Common to CSS, IT and CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Discuss about the evolution of data models.
(b) List and explain different types of data models.
- 2 (a) Explain about specialization and generalization constraints.
(b) Compare and explain single valued and multi valued attributes.
- 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 Explain about all the SQL functions in advanced SQL with syntax and example.
- 5 (a) Write a short note on MVD (Multivalued dependencies).
(b) What are the inference rules for MVD? Explain.
- 6 (a) What is transaction? Explain about its properties.
(b) Explain about 2-phase locking and lock granularity?
- 7 (a) What is immediate database modification and deferred database modification? Explain.
(b) Explain about the concept recovery with concurrency transaction?
- 8 Explain multi - key file organization in detail?

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- 1 (a) Define structural independence. Why is it important? Explain.
(b) Discuss about the external model with example.
- 2 (a) Discuss about the ternary relationship with example.
(b) What is specialization hierarchy? Explain in detail with example.
- 3 (a) Discuss about: (i) System catalog. (ii) Data dictionary.
(b) Discuss about any four set operators with example.
- 4 (a) What are the DML commands? Explain each with syntax.
(b) Explain how the computed columns and column aliases work in select queries.
- 5 (a) If $R = \{A, B, C, D\}$ and the functional dependencies are $= \{AB \rightarrow CE, E \rightarrow AB, C \rightarrow D\}$. Why R is in 2NF but not in 3NF? Explain?
(b) Explain the following with examples:
 - (i) Lossless join dependency.
 - (ii) Dependency preservation.
- 6 (a) Explain the terms binary lock, shared lock/exclusive lock.
(b) Explain about database recovery management.
- 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 inverted 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 How to develop an ER diagram? Write steps for developing an ERD with example?
- 3 Consider a table and perform the queries using all the set operators on that table.
- 4 (a) What is a database schema and what are the data types that are used in data definition commands?
(b) How to use updatable views? Explain.
- 5 (a) What is the dependency preservation property for decomposition? Which one must be definitely satisfied between the properties of dependency preservation and lossless? Why?
(b) Why is 4NF preferred to BCNF?
- 6 Explain about concurrency controlled with optimistic method.
- 7 (a) How the terms fuzzy check pointing and recovery algorithm are used in advanced recovery technique?
(b) What is immediate database modification and deferred database modification? Explain.
- 8 What is RAID? Discuss.

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- 1 (a) Define table. Explain linking relation tables with examples.
(b) What are the two main purposes of file system methods? Explain.
- 2 (a) What is redundancy? What are the problems caused by the redundancy?
(b) Explain about the derived attributes and write its advantages and disadvantages.
- 3 (a) What is an index? What are the components of an index?
(b) Discuss about any two relationships in relational database.
- 4 (a) How to create a table structure? Explain.
(b) Create a table and write queries to display minimum and maximum elements in a selected column and row.
- 5 (a) A Relation R (A, B, C, D) has FD $C \rightarrow B$. is in 3NF? Justify your answer.
(b) A Relation R (A, B, C,) has FD's $A \rightarrow AC$, is R is in 3NF? Does $AC \rightarrow C$? Justify your answer.
- 6 (a) Explain about inconsistent retrieval and scheduler in the concurrency controlled.
(b) Explain about the various level of lock granularity.
- 7 (a) Explain about concept of the buffer management in details.
(b) What is recovery algorithm? Explain in details.
- 8 Describe the important means of file organization.
