

Code No: 09A51901

R09

SET-1

B. Tech III Year I Semester Examinations, December-2011
DATABASE MANAGEMENT SYSTEMS
(ELECTRONICS AND COMPUTER ENGINEERING)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

- 1.a) Compare the Database system and File system.
b) Discuss briefly about Transaction Management, Storage management. [7+8]
- 2.a) What is meant by Mapping cardinalities? Discuss various Mapping cardinalities with suitable examples.
b) Draw an ER-diagram corresponding to customers and loans and Explain various rotations used in it. [7+8]
3. What is meant by Tuple relational calculus? State and explain various types of queries in it. And also compare it with Domain relational calculus. [15]
- 4.a) Discuss about Outer Joins and disallowing NULL values in SQL.
b) State and explain various comparison operators and aggregative operators in SQL. [7+8]
- 5.a) What is meant by Schema refinement? Compare the first and second normal forms.
b) Explain the Lossless join decomposition with a suitable example. [7+8]
- 6.a) List the ACID properties. Explain the usefulness of each.
b) Discuss about multiple granularity. [7+8]
- 7.a) Discuss the process of recovery with concurrent transactions.
b) Explain about Remote backup systems. [7+8]
8. What is meant by File organization and indexing? Discuss about Hash- based indexing and Tree- based indexing. [15]

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Time: 3 hours

Max. Marks: 75

Answer any five questions
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- 1.a) What are Data base languages? Explain them.
b) With a neat diagram explain the data base system structure. [7+8]
- 2.a) What is meant by a Ternary relationship? Draw sample ER-diagrams with a Ternary relationship and with a weak entity set.
b) Explain the distinctions among the terms primary key, candidate key, and super key. [7+8]
- 3.a) Discuss various selection and projection set operations.
b) What is meant by Domain relational calculus? State and explain various types of Queries in it. [7+8]
- 4.a) Explain the basic structure of an SQL Query with a suitable example.
b) What are the aggregate functions that SQL offers? Explain them with suitable examples. [7+8]
- 5.a) What is meant by Normal form? Discuss about Third normal form with an example.
b) What are Multi- valued dependencies? Discuss about normalization using multi valued dependencies. [7+8]
- 6.a) Describe the concepts “Serializability” and “Recoverability”.
b) What are Time stamp based protocols? Explain any one of them. [7+8]
- 7.a) What are the errors that may cause a transaction to fail? Explain them.
b) Discuss in detail about Log – based recovery system. [7+8]
- 8.a) Explain the concept of Hash based indexing with a suitable example.
b) Discuss about Indexed Sequential Access Methods. [7+8]

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SET-3

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Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

- 1.a) What is meant by Data abstraction? Discuss about DDL and DML.
- b) Discuss various functions of the database administrator. And also discuss about various types of database users. [7+8]
2. 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. And also construct appropriate table for this E-R diagram. [15]
3. What is a Relational algebra? State and explain various fundamental operations in it with suitable examples. [15]
4. State and explain with suitable examples the comparison operators, aggregate operators and NULL values in SQL. [15]
- 5.a) State and explain fourth normal form with a suitable example.
- b) Compare BCNF and third normal form. [7+8]
6. What are lock based protocols? Explain them in detail. [15]
- 7.a) What is meant by atomicity? Discuss about Log – based recovery.
- b) Explain the concept of shadow paging with a suitable example. [7+8]
- 8.a) Describe the concept of primary and secondary indexes.
- b) Discuss about Tree -based indexing and Hash based indexing. [7+8]

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SET-4

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(ELECTRONICS AND COMPUTER ENGINEERING)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

- 1.a) What is meant by a Data base system? Discuss its advantages over file system.
b) Discuss about storage manager and query processor. [7+8]
- 2.a) Discuss how ER diagrams are used in designing a data base. Discuss about various entity sets.
b) What is meant by Relationship sets? Discuss about binary and n-ary relationship sets. [7+8]
- 3.a) Compare the Tuple relational calculus and the Domain relational calculus.
b) What is meant by integrity constraints over relations? Give a suitable example. [7+8]
- 4.a) What is meant by SQL? Explain about nested queries and NULL values in SQL.
b) Discuss about complex integrity constraints in SQL. [7+8]
- 5.a) State and explain with a suitable example the third normal form.
b) Discuss the Pitfalls in Relational database design. [7+8]
- 6.a) What is meant by Transaction? Discuss about ACID properties of the transactions.
b) Explain the distinction between the terms “serial schedule” and “Serializable schedule”. [7+8]
- 7.a) Discuss about deferred database modification technique with a suitable example.
b) What is meant by shadow paging? Discuss about check points.
- 8.a) Explain about B⁺ trees with a suitable example.
b) Discuss about Indexed sequential Access Methods. [7+8]

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