Code No.: 5241

# FACULTY OF ENGINEERING

## B.E. 3/4 (CSE) I Semester (Main) Examination, December 2011

## DATABASE SYSTEMS

Time: 3 Hours] [Max. Marks: 75

***Note :*** *Answer* ***all*** *questions from Part* ***A****. Answer* ***any five*** *questions from Part* ***B****.*



PART – A **(25 Marks)**

1. Differentiate between file system and database system. **3**
2. Write about multiplicity constraints with example. **3**
3. Define metadata. What is the need of metadata ? **2**
4. What is a candidate key ? **2**
5. What is an atomic transaction ? **2**
6. What is check pointing ? Explain its need in DBMS. **3**
7. What are the features of sparse index ? **2**
8. What are bitmap Indices ? **3**
9. What is dynamic SQL ? **2**
10. What restrictions are necessary to ensure the view is updatable ? **3**

PART – B **(50 Marks)**

11. a) Draw and explain the 'Database Architecture'. **6**
    b) Explain the concept of aggregation in E-R model give a suitable example. **4**
12. a) Define the concept of aggregation. Give example. **3**
    b) Consider the following relational database :
    Employee (employee-name, street, city)
    Works (employee-name, company, salary)
    Company (company, city)
    Manager (employee-name, manager-name)
    Write the following in SQL, DDL/DML

1) Find all employees who earn more than an average salaries of all employees of their company.
2) Find all employees in the database who live in the same cities and on the same street as do their managers.
3) Create an assertion to impose the constraint that no employee should drawn an salary more than his / her manager. **(2+2+3)**

13. a) Compare BCNF and 3NF with an example. **4**

    b) Discuss about the following constraints on a single relation
    1) Not null
    2) Unique
    3) Check. **6**

14. a) Explain nested subqueries and complex queries with examples. **6**

    b) Explain log based recovery scheme. **4**

15. a) Describe about 'Thomas' write rule. **4**

    b) What are the three phases in 'ARIES recovery algorithm' ? Explain each of them. **6**

16. Define hashing. Explain the differences between closed and open hashing. Discuss the merits of each technique in database applications. **10**

17. Write short notes on the following :

    a) Data mining and analysis. **4**

    b) Division operator in relational algebra. **3**

    c) Deadlock recovery. **3**

**Code No. 2350 / N**

# FACULTY OF ENGINEERING

**B.E. 3/4 (CSE) I-Semester (New) (Main) Examination, November / December 2012**

Subject : **Database Management Systems**

**Time : 3 Hours** **Max. Marks: 75**

**Note:** Answer **all** questions of Part - A and answer any **five** questions from Part-B.

## PART – A (25 Marks)

1. What are the responsibilities of DBA? (3)
2. What is Data abstraction? (2)
3. Differentiate between file system and data base system. (3)
4. What is Foreign key? (2)
5. Explain 'Natural-Join' operation in relational algebra with an example. (3)
6. What is dynamic SQL? (2)
7. What is Normalization? (2)
8. Define ACID properties. (3)
9. Define check point. Where it is used. (2)
10. Explain recoverable schedule. (3)

## PART – B (5x10=50 Marks)

11.(a) Draw and explain 'Database Architecture'. (6)
(b) What are different Database languages and explain. (4)

12.(a) Explain the concept of generalization, specialization and aggregation with example. (6)
(b) Discuss about 'Nested Sub Queries'. (4)

13. What is Normalization? Explain the concept of functional dependencies in normal forms with example. (10)

14.(a) What are bit map indices? How they are useful? (4)
(b) Explain the concept of 'conflict serializability' with an example. (6)

15.(a) Define hashing. Explain different hashing techniques with an example. (6)
(b) Explain Recoverability in Transactions. (4)

16.(a) Describe about 'Thomas' write rule. (4)
(b) Discuss about Time-Stamp based protocols and validation-based protocols. (6)

17. Write short notes on : (4+3+3)
(a) Multiple granularity
(b) ARIES
(c) Storage structure

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Code No. 6107

# FACULTY OF ENGINEERING

## B.E. 3/4 (CSE) I-Semester (Main) Examination, November 2013

### Subject : Database Management Systems

**Time : 3 Hours** **Max. Marks: 75**

***Note: Answer all questions of Part - A and answer any five questions from Part-B.***

**PART – A** (25 Marks)

1. Explain three levels of data abstraction. (3)
2. What is candidate key? (2)
3. Explain 'Cartesian - Product' operation in relational algebra with an example. (3)
4. Explain aggregate functions in SQL. (2)
5. What is embedded SQL? (2)
6. Define functional dependency with example. (3)
7. What is static hashing? (3)
8. Explain state diagram of transaction. (2)
9. When a transaction need to the Roll back? (2)
10. What are dead lock prevention technique and explain? (3)

**PART – B** (5x10=50 Marks)

11. Explain the advantages of DBMS over traditional file processing system. (10)

12. (a) Explain E-R diagram with extended features. (6)
    (b) Explain the concept of generalization and specialization. (4)

13. What is normalization? Explain 1NF, 2NF, 3NF with examples. (10)

14. (a) Explain the concept of 'conflict serializability' with an example. (6)
    (b) What are ACID properties and explain each of them? (4)

15. (a) Construct $B^+$ tree for the following set of values (6)

| | | | | | |
|---|---|---|---|---|---|
| 5 | 15 | 25 | 35 | 45 | |
| 55 | 65 | 75 | 85 | 95 | 99 |

    (b) Describe about multiple Granularity protocol. (4)

16. (a) Describe about 'Thomas' write rule. (4)
    (b) Discuss about Time-stamp based protocol and validation based protocols. (6)

17. Write short notes on the following:
    (a) Storage structure (4)
    (b) ARIES (3)
    (c) Recursion in SQL (3)

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13. a) Consider the following database : **5**

Employee (ename, street, city)

Works (ename, company_name, salary)

Company (company_name, city)

Manages (ename, mgr_name)

Write SQL queries for the following :

a) Find all the employee names who are working in 'XYZ' company and working under the manager named 'Rama Rao'.

b) Find the number of employees working in any company located in 'Hyderabad'.

b) Explain 2NF, 3NF with an example. **5**

14. a) What are ACID properties and explain them ? **4**

b) Explain the concept of 'view serializability' with an example. **6**

15. a) Construct $B^+$ tree for the following set of values. **6**

6 17 28 22 43

54 65 76 87 98 99

b) Discuss about immediate database modification. **4**

16. a) Explain log based recovery mechanism. **5**

b) Explain the concept of 2-phase locking. **5**

17. Write short notes on :

a) Deadlock prevention. **3**

b) Cascading rollback. **3**

c) Storage structure. **4**

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Code No. : **6107/S**

# FACULTY OF ENGINEERING
## B.E. 3/4 (CSE) I Semester (Supple.) Examination, July 2014
## DATABASE MANAGEMENT SYSTEMS

Time: 3 Hours] [Max. Marks: 75

***Note :*** *Answer **all** questions from Part – **A** and **any five** questions from Part – **B**.*

PART – A

1. What are the advantages of views ? **2**
2. State any 5 responsibilities of DBA. **3**
3. What is a candidate key ? **2**
4. What are different uses of null values in a database ? **3**
5. What is a cursor ? **2**
6. Define normalization. **2**
7. What are Bitmap Indices ? **3**
8. Draw the transaction, state diagram. **3**
9. What are the disadvantages of lock based concurrency control/protocols ? **2**
10. What are the different recovery algorithms ? **3**

PART – B

11. a) What are the differences between file processing system and database systems ? **6**
    b) Explain the concept of generalization and specialization. **4**
12. a) Explain the process of converting ER diagram to tables. **4**
    b) What are the different relational algebra operations ? Explain them with an example. **6**