

Reg. No. :

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**Question Paper Code : 87504**

M.C.A. DEGREE EXAMINATION, FEBRUARY 2012.

First Semester

DMC 1913 — DATABASE MANAGEMENT SYSTEM

(Regulation 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is a Database? What is a DBMS?
2. What is an instance? What is a schema?
3. Explain QBE.
4. Define Primary Key and Foreign Key.
5. List the factors to be considered in evaluating an index.
6. Give the syntax for creating an index in SQL.
7. What is a Query tree?
8. List the steps in query processing.
9. Explain atomicity of a transaction.
10. How is a transaction started and ended in SQL?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the advantages of Database Management System over File Management System. (10)
- (ii) Briefly discuss the history of database systems. (6)

Or

- (b) What is an entity? What is a relationship? Explain ER modelling with the help of database for a Student Management System. (16)

12. (a) (i) Schema defined for Employee Management System is :  
Employee : EmpID, Name, Address, Department, Designation, Salary  
Department : Dept ID, Name, HeadID  
Create and insert data for the above schema. (5)
- (ii) Write SQL Queries for the following and show the results :
- (1) Retrieve the details of employee who gets the maximum salary. (3)
  - (2) List names of all employees who earn more than Rs. 1,00,000 in a year. (3)
  - (3) Give the name of the employee who heads the department where employee with EmpID 3 works. (5)

Or

- (b) Define Normalization. Explain 1NF, 2NF, 3NF, BCNF using appropriate examples. (16)
13. (a) Explain how data retrieval, insertion and deletion are done using B tree and B+ tree indices. (16)

Or

- (b) (i) Explain static hash function. What is the need for dynamic hash function? (8)
- (ii) Discuss the alternatives available for quick processing of multiple key access queries. (8)
14. (a) (i) Explain Query Optimization. (8)
- (ii) Discuss the various strategies for processing a three way join query. (8)

Or

- (b) Explain how sorting queries are processed with examples. (16)
15. (a) Discuss the following :
- (i) Lock based Protocols (8)
  - (ii) Timestamp based Protocols. (8)

Or

- (b) (i) How are deadlocks handled in transaction processing? (8)
- (ii) Explain Shadow Paging with examples. (8)



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**Question Paper Code : 85804**

M.C.A. DEGREE EXAMINATION, FEBRUARY 2011.

First Semester

DMC 1913 — DATABASE MANAGEMENT SYSTEMS

(Regulation 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is a data model? List a few data models that you know.
2. What is a weak entity? Give an example.
3. What is assertion? Give an example.
4. Write an SQL query to retrieve the details of employee drawing the second largest salary from the relation schema : employee (Emp- No, Emp-name, Designation, Salary).
5. What is data stripping?
6. List the types of single level ordered indexes.
7. What the steps in query processing?
8. What is a query tree? Give example
9. Why is concurrency control needed?
10. List the ACID properties of a transaction.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Define Database and DBMS. What are the advantages of using a database over file management system. (10)
- (ii) Discuss the various views of data. (6)

Or



- (b) (i) Explain the notational conventions used in the ER Model. (6)
- (ii) Construct an ER Model for Student Administration System. Students who apply for a course are registered in the system. Short listed candidates are called for interview and their marks recorded. Selected candidates are admitted. (10)
12. (a) How would you use the feature of nested queries in SQL to develop complex queries? Give examples. (16)

Or

- (b) (i) What is an embedded SQL? Explain with an example. (8)
- (ii) Explain how basic retrievals and modifications are done in a database using QBE Language. (8)
13. (a) (i) Explain as to how records of a file are placed and organized into a file in secondary storage. (8)
- (ii) Explain as to how hashing is used for file organization Write about static hashing and dynamic hashing. (8)

Or

- (b) Discuss how multi level indexes are constructed using B trees and B+ trees. (16)
14. (a) Discuss the various search algorithms used to implement select operation. (16)

Or

- (b) (i) Discuss the methods of implementing join queries. (8)
- (ii) Write about Query optimization. (8)
15. (a) What is serializability? What are its types? What is a serializable schedule? Give examples. (16)

Or

- (b) (i) Write about shadow paging. (8)
- (ii) Discuss the various concurrency control protocols. (8)



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**Question Paper Code : YY 2565**

M.C.A. DEGREE EXAMINATION, FEBRUARY 2010.

First Semester

DMC 1913 — DATABASE MANAGEMENT SYSTEMS

(Regulation 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Atomicity in Transaction Management.
2. Define Weak Entity.
3. Define Dynamic SQL.
4. Give an example for foreign key.
5. Why is B+ tree efficient than B tree?
6. What is the need for dynamic Hashing?
7. List out different types of join operations.
8. Give example for complex selection operation.
9. Define strict two phase locking protocol.
10. What is Authorization and Authentication in Oracle?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the overall system structure of database management system. (8)
- (ii) Draw the E-R diagram for a Library Management System. (8)

Or



- (b) (i) Illustrate the need for a Data Base System, giving suitable examples. (8)
- (ii) Give a brief note on the different views of data, with the necessary diagram. (8)

12. (a) Consider the following table :

Employee (Emp\_Name, Dept\_Name, Salary)

Write SQL statements for the following :

- (i) Find the employee name who is getting lowest salary.
- (ii) Find the department name which has highest average salary.
- (iii) Find all the department where more than 60 employees are working.
- (iv) Find all employees whose salary is higher than the average salary of their department. (4 × 4 = 16)

Or

- (b) (i) Explain about Domain constraints and Referential integrity with examples. (8)
- (ii) Explain the third normal form and boyce codd normal form with example. (8)

13. (a) Construct B tree and B+ tree to insert the following key values (order of the tree is three) :

32, 11, 15, 13, 7, 22, 15, 44, 67, 4. (16)

Or

- (b) (i) Explain extendible hashing with a suitable example. (8)
- (ii) Explain the principles of the various RAID Levels. (8)



14. (a) (i) Explain the basic steps involved in Query Processing. (6)  
(ii) Explain Hash Join algorithm in query processing. (10)

Or

- (b) (i) Illustrate the principles of Indexed Nested Loop Join. (8)  
(ii) Explain the principles of selection using indices. (8)
15. (a) Discuss the 2PC (2-Phase Commitment) protocol, and its significance.

Or

- (b) Illustrate the principles of Dead Lock avoidance and Recovery in database transaction.
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