



PG – 557

II Semester M.C.A Examination, June/July 2018  
(CBCS)  
COMPUTER SCIENCE  
MCA 202T : Database Management System

Time: 3 Hours

Max. Marks: 70

**Instructions:** Answer any five from Part – A and any four from Part – B.

PART – A

Answer any five of the following :

(5×6=30)

1. What are the main characteristics of DBMS ?
2. Explain the different categories of end users.
3. How is view created and dropped ? What are the problems associated with updating views.
4. What is an Entity, attribute and its types ?
5. What is functional dependencies ? What are database anomalies and its types ?
6. Discuss the role of DBA in brief.
7. Discuss the ACID properties of a database transaction.
8. What is indexing ? Comment on single level and multiple level indexing.

PART – B

Answer any four of the following :

(4×10=40)

9. Define data, database system and DBMS. List out the advantages of using database approach.
10. What is data model ? Explain the different categories of data model.
11. Draw an ER diagram for college administration system.

P.T.O.



12. What is Normalization? Explain 3NF and BCNF.
13. a) Explain different aggregate functions.  
 b) Bring out the difference between :  
 i) Group By, Having  
 ii) Order By, Where Clause.
14. Write a short note on the Following : (4+3+3)  
 i) Types of JOIN in SQL  
 ii) Concurrency control  
 iii) Triggers.

Answer any five of the following :

1. What are the main characteristics of a database system?
2. Explain the different categories of users in a database system.
3. How is a view created and how is it used? Write any two advantages of using views.
4. What is an Entity, attribute and relationship? Write any two advantages of using ER model.
5. What is functional dependency? What are the different types of functional dependencies and how are they used?
6. Discuss the role of DBA in a database system.
7. Discuss the ACID properties of a database system.
8. What is indexing? Comment on single level and multiple level indexing.

PART - B

9. Define data database system and DBMS. List out the advantages of using database approach.
10. What is data model? Explain the different categories of data models.
11. Draw an ER diagram for college administration system.



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**II Semester M.C.A. Examination, July 2017**  
**(CBCS)**  
**COMPUTER SCIENCE**  
**MCA – 202 T : Database Management System**

Time : 3 Hours

Max. Marks : 70

PART – A

I. Answer **any five** of the following. **Each** question carries **six** marks. **(5×6=30)**

- 1) Define data, database system and DBMS. List out the advantages of using database approach.
- 2) Define data independence. Distinguish between physical and logical data independence.
- 3) Write E-R diagram for Karnataka State Road Transport Corporation (KSRTC) route management. (Assume that there are cities, buses, conductor, driver and passengers).
- 4) Write a short note on SELECT ( $\sigma$ ), project ( $\pi$ ) and JOIN ( $\bowtie$ ).
- 5) Explain the following :
  - 1) Functional dependency
  - 2) Entity Integrity.
- 6) Discuss the various types of join operations in relational algebra.
- 7) Discuss the various operations on relations and type of integrity constraints that must be checked for each update operation.
- 8) Discuss the ACID properties of a database transaction.

PART – B

II. Answer **any four** of the following questions. **Each** question carries **10** marks. **(4×10=40)**

- 9) What is data model ? Explain the different categories of data models.
- 10) Why do we require file organization ? Explain the types of file organization and mention differences between them.

P.T.O.



- 11) What are insertion, deletion and updation anomalies ? Illustrate mechanism to handle insert, delete and update anomalies.
  - 12) Discuss the different DML commands in sql. with suitable examples.
  - 13) What is two phase locking protocol ? How does it guarantee serializability ?
  - 14) Write short notes on (**any two**) :
    - 1) Boyce Codd Normal Form
    - 2) Aggregate functions
    - 3) Refential integrity.
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PG – 499

**II Semester M.C.A. Examination, June 2016**  
**(CBCS)**  
**COMPUTER SCIENCE**  
**MCA – 202T : Database Management System**

Time : 3 Hours

Max. Marks : 70

**PART – A**

Answer **any five** of the following. **Each** question carries **six** marks : **(5×6=30)**

1. What are the main characteristics of the Database Approach over the file processing approach ?
2. Explain 3-Schema Architecture with a neat sketch.
3. Define an entity and an attribute. Explain the different types of attributes with examples.
4. Define referential integrity constraint. Explain the importance of referential integrity constraint in SQL.
5. How is a view created and dropped ? What problems are associated with updating of views ?
6. Discuss Embedded SQL and Dynamic SQL.
7. Discuss properties of a transaction with state transition diagram.
8. Explain with example serial, non-serial and conflict serializable schedules.

**PART – B**

Answer **any four** of the following questions. **Each** question carries **10** marks : **(4×10=40)**

1. Write an ER diagram for Hotel Management System with at least 4 entities.

**P.T.O.**



2. What is need for Normalization ? Explain 2NF. Consider the relation EMP\_PROJ as EMP\_PROJ = { SSN, Pnumber, Hours, Ename, Pname, Plocation} Assume {SSN, Pnumber} as Primary Key.

The dependencies are

SSn, Pnumber → {Hours}

SSn → {Ename}

Pnumber → {Pname, Plocations}

Normalize the above Relation into 2NF.

3. Consider the following tables :

WORKS (Pname, Cname, Salary)

LIVES (Pname, Street, City)

LOCATED\_IN (Cname, City).

MANAGER (Pname, Mgrname)

Write SQL Query for the following :

- 1) Find the names of all persons who live in the city 'MUMBAI'.
  - 2) Retrieve the names of all persons whose salary is between Rs. 30,000 and Rs. 50,000.
  - 3) Find the names of all persons who live and work in the same city.
  - 4) List the names of the people who work on Project X.
  - 5) Find the average salary of all the employees.
4. Discuss two-phase locking protocol used in concurrency control.
5. Justify the problems that can occur when concurrent transactions are executed with examples.
6. What is indexing ? Why is it necessary for Database Management System ? Discuss types of Indexes with necessary sketches.
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PG – 511

II Semester M.C.A. Degree Examination, June 2015  
(CBCS)

MCA 202 T : DATABASE MANAGEMENT SYSTEM

Time : 3 Hours

Max. Marks : 70

**Instruction :** Answer **any five** questions from Part – A and **any four** questions from Part – B.

PART – A

**Note :** Answer **any five**. Each carries **six** marks. (5×6=30)

1. Differentiate between file organization method and database management system.
2. What is entity, weak entity, primary attribute, composite attribute, derived attribute ? Give example for each of them.
3. What is indexing ? Why is it necessary for database management system ? Write a note on primary indexing and secondary indexing.
4. Define 1 normalization, second normalization, functional dependency, fully functional dependency and third normalisation form. Give examples.
5. What is a JOIN, operation with example. Explain EQUI JOIN, NATURAL JOIN and LEFT JOIN.
6. What is concurrency ? How does one handle concurrency in Database Management System ?
7. Write syntax for creating table, creating view, deleting a table and updating a table in SQL.
8. What are the roles of a Database Administrator ?

PART – B

Answer **any four**. Each carries **10** marks. (4×10=40)

9. On the occasion of Birth Anniversary of Kannada Film Legend Dr. Rajkumar, the Karnataka Film Chambers would like to build a database on Dr. Rajkumar. The film Chambers want to store the movie name, year of release, co-actors, director of the movie, producer of the movie. Film chambers also wish to store songs details of Dr. Rajkumar, like song title, co-singer, movie name, director of the movie. There are some awards like Data Saheb Palkhe, Film chambers, Film Festival awards conferred on Dr. Rajkumar. Please help the film chambers of Karnataka by offering your solution through an appropriate E-R diagram.

P.T.O.



10. Using the following tables of election commission of Karnataka, write SQL statements to solve the given question :

CONSTITUENCY (const-id, name-of-constituency, district, no-of-voters)

CANDIDATE (candidate-id, name, gender, date-of-birth, address, party-id)  
[party-id is the primary key of PARTY (party-id)]

PARTY (party-id, name, year-of-estd, address)

RESULT (result-id, const-id, candidate-id) [const-id is the primary key of CONSTITUENCY (const-id), and candidate-id is the primary key of CANDIDATE (candidate-id)]

Write SQL for the following :

- a) How many seats have been won by the party "Namma Party" ?
  - b) Display names of candidates, who are women won by the "Raithara Party" ?
  - c) Who are the defeated candidates in the constituency with const-id as 83 ?  
Display defeated candidates party, gender of the defeated candidate and name.
11. Discuss salient features of a relational database management system.
12. What are aggregate functions in SQL ? With suitable example, explain SUM, COUNT, MAX, MIN and Average. Give an example for ORDER By and Group By.
13. What is serializability ? Why is it necessary for a database management system ? Give an example with three transactions  $t_1$ ,  $t_2$ ,  $t_3$ , with R (Read) and W (Write operation) which is serializable.
14. Write a note on the following :
- a) ACID property
  - b) PL SQL.