

Code No.: IT403PC

R20

H.T.No.

8 R

**CMR ENGINEERING COLLEGE: : HYDERABAD**  
**UGC AUTONOMOUS**  
**II-B.TECH-II-Semester End Examinations (Supply) - February- 2023**  
**DATABASE MANAGEMENT SYSTEMS**  
**(Common to CSM, IT)**

[Time: 3 Hours]

[Max. Marks: 70]

**Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART-A**

(20 Marks)

1. a) Define database management system? [2M]
- b) What is relationship? Give examples. [2M]
- c) Define- relational algebra? [2M]
- d) What are aggregate functions? And list the aggregate functions supported by SQL? [2M]
- e) What are the categories of SQL commands? [2M]
- f) Write about functional dependency? [2M]
- g) List out the ACID Properties? [2M]
- h) What are the different modes of lock? [2M]
- i) What is clustered index organization? [2M]
- j) What is B-Tree? [2M]

**PART-B**

(50 Marks)

2. Draw and Explain about the Data Base Architecture? [10M]
- OR**
3. Write the different elements used in ER – Model in detail? [10M]
4. What is meant by integrity constraint? Write about complex integrity constraints in sql. [10M]
- OR**
5. Write about relational algebra? Discuss about different operators used in algebra. [10M]
6. Explain the importance of Null values in Relational Model? [10M]
- OR**
7. Define BCNF. How does BCNF differ from 3NF? Explain with example. [10M]
8. Is every conflict serializable schedule is serializable? Explain. [10M]
- OR**
9. Discuss in detail about the phases the recovery manager proceeds when the system is restarted after a crash? [10M]
10. What is an index? Discuss important properties of an index that affect the efficiency of searches using the index. [10M]
- OR**
11. Describe a B+ tree for the following set of key values:(2,3,5,7,11,17,19,23,29,31) [10M]  
Assume that the tree is initially empty and values are added in ascending order?

\*\*\*\*\*