

B.Tech II Year I Semester (R19) Regular Examinations March 2021

**DATABASE MANAGEMENT SYSTEMS**

(Common to CSE &amp; IT)

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- List the four kinds of database users.
  - What are the activities in information retrieval process?
  - What is a NULL value in a database? What are the advantages and disadvantages of NULL values in databases?
  - What is the basic structure of a SQL query?
  - How to remove the redundant attributes in entity sets?
  - Distinguish the first and second normal forms.
  - What do you mean by Unnesting Nested Queries? Give an example.
  - What do you mean by query block? Give an example.
  - What do you mean by transaction roll back? When does it occur?
  - Define atomicity and aggregation.

**PART – B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- 2 (a) What do you mean by data models and explain the different types of data models?  
 (b) Explain the functional components of a DBMS

**OR**

- 3 (a) Explain the necessity of Database management Systems in this digital world.  
 (b) Define schema. Explain three level architecture in DBMS.

**UNIT – II**

- 4 (a) What are aggregate functions in SQL? Explain any two aggregate functions with suitable example.  
 (b) Consider the tables given below:

Student( regNo, name, pgmId, email, district)

Program(pgmId, pgmName, Year)

Write SQL statements for following:

- List the students those who are coming from your district.
- List the students those who are joined in any "history" program.

**OR**

- 5 (a) What are the purposes of views in SQL? Explain with examples.  
 (b) Write the importance of procedures and explain how it can be invoked. Explain with example.

**UNIT – III**

- 6 (a) What do you mean by normalization? Explain the process of decomposition using multivalued dependencies with suitable example.  
 (b) Identify the potential entities in a petrol filling station and draw the ER diagram for it.

**OR**

- 7 (a) What are the basic building blocks of ER-diagram? Explain with a simple example.  
 (b) What do you mean by functional dependency? Explain how they are used in normalization with suitable examples.

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**UNIT – IV**

- 8 (a) Explain any query optimization method in detail.  
(b) What are factors affecting the performance of JOIN operation. Explain.

**OR**

- 9 (a) Explain the Nested Loop Join and Index-Based Join with respect to query processing.  
(b) What do you mean by query tuning? Explain with an example.

**UNIT – V**

- 10 (a) What is database recovery? Explain shadow paging in detail.  
(b) What are the states of transaction and explain in detail?

**OR**

- 11 Write short notes on the following:  
(a) Failure classification.  
(b) Transaction isolation levels.  
(c) Multiple granularity w.r.t concurrency control.

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