



<b>Course Code</b>	: 2101CS201	<b>Date</b>	: 13-05-2024
<b>Course Name</b>	: Database Management System - I	<b>Duration</b>	: 150 Minutes
		<b>Total Marks</b>	: 70

**Instructions:**

1. Attempt all the questions.
2. Figures to the right indicates maximum marks.
3. Make suitable assumptions wherever necessary.

- Q.1 (A)** Explain the applications of Database Management System. **4**
- (B)** Discuss three levels of Database System Architecture with the help of diagram. **3**

**OR**

Clarify Data and Information with the help of example.

- (C)** Explain the different roles of DBA. **7**

**OR**

Explain the advantages of Database Management System.

- Q.2 (A)** List and explain types of mapping cardinality. **4**
- (B)** Define weak entity set and strong entity set. **3**

**OR**

Define composite attribute, multivalued attribute, and derived attribute.

- (C)** Classify specialization and generalization. **7**

**OR**

Explain different constraints on specialization and generalization.

- Q.3 (A)** List and explain types of Functional dependency. **4**
- (B)** Describe decomposition with the help of example. **3**

**OR**

Describe insert anomaly and delete anomaly with the help of example.

- (C)** Explain 2NF with the help of example. **7**

**OR**

Explain 3NF with the help of example.

- Q.4 (A)** Explain query optimization. **4**
- (B)** Classify linear search and binary search. **3**

**OR**

Explain materialization and pipeline.

- (C)** Explain query processing with the help of diagram. **7**

**OR**

Explain transformation of relational expression.

- Q.5 (A)** Define transaction. Explain ACID properties of transaction. **4**
- (B)** Define 2 phase locking protocol. **3**

**OR**

Define 2 phase commit protocol.

- (C)** Explain log-based recovery method. **7**

**OR**

Explain shadow paging technique.

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