# GUJARAT TECHNOLOGICAL UNIVERSITY
## MCA INTEGRATED– SEMESTER -III EXAMINATION –WINTER-2021

**Subject Code: 4430604**                                    **Date: 29/12/2021**
**Subject Name: Database Management Systems**
**Time: 10:30 AM TO 01:00 PM**                        **Total Marks: 70**
**Instructions:**

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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|---|---|---|---|
| **Q.1** | **(a)** | Answer the following questions. | |
| | | 1. What do you mean by checkpoint? What is its use? | **02** |
| | | 2. Define authentication and authorization. | **02** |
| | | 3. Write about transaction and transaction failure. | **02** |
| | | 4. What is the importance of Audit trail? | **01** |
| | **(b)** | What is Query Processing? Also explain the steps of it. Illustrate with diagram. | **07** |
| **Q.2** | **(a)** | What is Serializability? Explain conflict serializability in detail with example. | **07** |
| | **(b)** | Explain materialized view and types of view maintenance. | **07** |
| | | **OR** | |
| | **(b)** | Define transaction. Write the ACID properties. Describe the state diagram of a transaction. | **07** |
| **Q.3** | **(a)** | What are the types of lock? Explain two-phase locking protocol in detail. | **07** |
| | **(b)** | Briefly explain phantom phenomenon. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | What is deadlock? Write about deadlock detection and recovery. | **07** |
| | **(b)** | Explain Recoverable schedule and Cascadeless schedule by giving appropriate examples. | **07** |
| **Q.4** | **(a)** | Explain Deferred update and Immediate update techniques. | **07** |
| | **(b)** | Explain the concept of shadow paging in detail. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | State and explain the types of database failures. | **07** |
| | **(b)** | Describe the concept of mandatory access control. | **07** |
| **Q.5** | **(a)** | What is database security? What are various threats and issues to database security? Explain. | **07** |
| | **(b)** | Discuss OODM. Compare it with E-R Model. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | What is Data Encryption? Discuss the various Encryption schemes used in Database security. | **07** |
| | **(b)** | Define distributed database. Describe the properties and functions of it. Name different types of distributed databases. | **07** |

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