Printed Page:- 03 **Subject Code:- AMIBA0404**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

MBA (Integrated)

SEM: IV - THEORY EXAMINATION (2023 - 2024)

Subject: Data Base Management

Time: 2.5 Hours **Max. Marks: 60**

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.
2. Maximum marks for each question are indicated on right -hand side of each question.
3. Illustrate your answers with neat sketches wherever necessary.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.
6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A 15

1. Attempt all parts:-

1-a. A Database Management System is a type of _____. (CO1) 1

(a) system software
(b) Application software
(c) General software
(d) Both A and C

1-b. Which of the following is not Constraint in SQL? (CO2) 1

(a) Primary Key
(b) Not Null
(c) Check
(d) Union

1-c. Minimal Cover is also known as _____. (CO3) 1

(a) Full Cover
(b) Canonical Cover
(c) Partial Cover
(d) None of the above

1-d. Which of the following is not a transaction state ? (CO4) 1

(a) Rollback transaction
(b) Aborted transaction
(c) Active transaction

(d) Partially committed transaction

1-e. All lock information is managed by a _____ which is responsible for assigning and policing the locks used by the transactions. (CO5) 1

(a) Scheduler
(b) DBMS
(c) Lock manager
(d) Lock Integrator

2. Attempt all parts:-

2.a. What is data model ? List any four data model ? (CO1) 2

2.b. Define Integrity Constraints.(CO2) 2

2.c. What are the Armstrong's axioms? (CO3) 2

2.d. What are the properties of a transaction? (CO4) 2

2.e. Define the characteristics of an Exclusive Lock. (CO5) 2

SECTION-B 15

3. Answer any three of the following:-

3-a. What is abstraction? Explain the different levels of abstraction .(CO1) 5

3-b. What are the various operators used in relational algebra? Explain each operator with suitable example. (CO2) 5

3.c. Define and explain Multivalued Dependencies with an example. (CO3) 5

3.d. Explain View Serializability with example. (CO4) 5

3.e. Differentiate between homogeneous and heterogeneous databases. (CO5) 5

SECTION-C 30

4. Answer any one of the following:-

4-a. Explain the network and hierarchical data model with example.(CO1) 6

4-b. Explain the drawbacks of file based system in dbms.(CO1) 6

5. Answer any one of the following:-

5-a. What do you understand by cardinality ratio. Explain the different types of cardinality ratio with the help of examples. (CO2) 6

5-b. Draw the ER diagram for a company . Company needs to store information about employees (identified by ssn, with salary and phone as attributes), departments (identified by dno, with dname and budget as attributes), and children of employees (with name and age as attributes). Employees work in departments, each department is managed by an employee, a child must be identified uniquely by name when the parent (who is an employee; assume that only one parent works for the company) is known. We are not interested in information about a child once the parent leaves the company. (CO2) 6

6. Answer any one of the following:-

6-a. Compare lossless and lossy decomposition with suitable example. (CO3) 6

6-b.	Prove following sets of functional dependencies are equivalent F = { A -> C, AC -> D, E -> AD, E -> H } G = { A -> CD, E -> AH }	(CO3)	6

7. Answer any <u>one</u> of the following:-

7-a.	Explain the need of two phase commit protocol in distributed database.	(CO4)	6
7-b.	Describe the failures with their classification in detail.	(CO4)	6

8. Answer any <u>one</u> of the following:-

8-a.	What is the difference between OLTP and OLAP. Discuss their advantages and disadvantages.	(CO5)	6
8-b.	Differentiate between Strict Two Phase Locking and Rigorous Two phase Locking Protocol.	(CO5)	6