

END TERM EXAMINATION

SECOND SEMESTER [MCA] MAY 2019

Paper Code: MCA 108

Subject: Database Management Systems

Time : 3 Hours

Maximum Marks : 75

Note: Attempt five question in all including Q. No. 1 which is compulsory.
Select one question from each unit.

- Q1. Attempt **(any five):** (3x5=15)
- Write a short note on database and database users.
 - Describe Oracle Architecture.
 - Write a short note about dependency.
 - How time stamp ordering helps in concurrency? Discuss.
 - Explain two-phase-locking protocol.
 - How distributed database works? Discuss its architecture.
 - How index file works on plain database file?

Unit-I

- Q2. What is entity-relational model? Construct an ER-Diagram for the National Cricket League (NCL) database. Suppose your have given the following requirements for a simple database for the NCL.
- The NCL has many teams
 - Each team has a name, a city, a coach, a captain, and a set of players.
 - Each player belongs to only one team.
 - Each player has a name, age and a position (such as bowler/batsman/Wicket-keeper).
 - A team captain is also a player.
 - A game is played between two teams (referred to as Team A and Team B) and has a date (such as May 27th, 2019) and a score (such as 364/4).

Describe the whole scenario.

(15)

- Q3. Define Database Management Systems. What are the different data model exist and explain in detail with suitable examples? (15)

Unit-II

- Q4. Describe the following with example **(any five)**. (3x5=15)
- Entity Integrity
 - Referential Integrity
 - Foreign Key
 - Field size validation
 - Candidate Key
 - Granularity
- Q5. a) Define Database Joins and explain various joins present in the DBMS. (9)
- b) Discuss the following Relation Algebra operations with suitable example. (6)
- SELECT
 - SET DIFFERENCE
 - INTERSECTION

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Unit-III

- Q6. What is logical data structure of Oracle database? Explain the Oracle error handling procedure? (15)
- Q7. What is physical data structure of Oracle database? Explain about Oracle triggers in detail. How triggers are different from cursors? Give example. (15)

Unit-IV

- Q8. Why normalization is needed? Explain about 1-NF, 2-NF, 3-NF and Boyce Codd normal form with example. (15)
- Q9. Explain dependency preserving decomposition and lossless decomposition in detail. Elaborate differences between RDBMS and OO DBMS. (15)

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