MCA III Semester Supplementary Examinations, November-2019

DATA BASE MANAGEMENT SYSTEMS

Time: 3 Hours   Max. Marks: 60

Answer Any **FIVE** *Questions*
All Questions Carry Equal Marks

1.	a	Explain the following : i) Conceptual Schema ii) Physical Schema iii) External Schema	6M
	b	How to ensure the integrity with key constraints in database systems? Explain with primary and foreign key constraints.	6M
2.	a	Create database and views for employee with minimum 4 attributes. And also perform altering and destroying tables and view.	6M
	b	Construct an ER diagram for Car Insurance company Database. Identify entities, attributes for each entity, relationship among entities. Represent necessaryconstraints in this database design process in detail.	6M
3.	a	Write and explain the SQL functions Date and Time, Numeric, String conversion	6M
	b	Why join operation gives special attention? Explain condition join, equijoin, natural join with an example.	6M
4.	a	Consider the following relation schema:	6M

Sailors(sid: **integer**, sname: **string**, rating: **integer**, age: **real**)
Boat(bid: **integer**, bname: **string**, color: **string**)
Reserves(sid: **integer**, bid: **integer**, day: **date**)
  i.   Find the names of sailors who have reserved a red or a green boat.
  ii. Find the average age of sailor with rating of 10.
  iii. Find the number of reservations for each red boat.
  iv. Find the name and age of oldest sailor.

	b	Describe an algorithm for computing the minimal cover of a set of Functional Dependency's and illustrate its application in 3NF with an example?	6M
5.	a	Consider the relation R(A,B,C,D,E,F) and the FDs ABC→DE,ABC→D, DE→ABCE, E→C. Decompose the relation by considering the given set of FDs into BCNF relation. Is the decomposition lossless and dependency preserving?	6M
	b	What is dependency closure F+ of a set of FDs? What the attribute closure X+ of a set of attributes X with respect to a set of FDs F?	6M
6.	a	"Locking Protocols are enforced by DBMS for concurrency control"- Justify this statement.	6M
	b	Why timestamps are used? How many ways timestamps are generated? Discuss the Thomas Write Rule.	6M

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7. a Write a short note on   6M
      i)Write-ahead log protocol ii) Deadlock handling strategies iii) transaction recovery

   b How to maintain redundant arrays of storage? Explain the role of mirroring and   6M
      various levels of redundant arrays in detail.

8. a Compare the working principles, advantages and disadvantages of Ordered Indexing   6M
      with Hashing and Linear Hashing with extendable Hashing

   b Construct a B+ tree for the following set of key values   6M
      (2,5,7,9,8,12,17,14,6,22,18,4,5,10). Show the trace for each of the insertions in the
      given order.

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