End Semester Exam
MAY-JUNE 2021

Max. Marks: 50
Duration: 1 Hr. 45 Min.

Class: SY B.Tech   Semester: IV
Name of the Course: Relational Database Management Systems   Branch: Computer
Course Code: 2UCC403

Instructions:
(1)   **All questions are compulsory**
(2)   **Draw neat diagrams**
(3)   **Assume suitable data if necessary**

Question No.		Max Marks

Q1 (A)	**Answer the following question. Each question carries 1 mark.**
	
	 1.1 Consider the following Employee Table
	
	 Employee_id Name Salary
	 1001 Annie 6000
	 1009 Ross 4500
	 1018 Zeith 7000
	 .
	 Which of the following employee_id will be displayed for the given query?
	
	 SELECT * FROM employee WHERE employee_id>1017;
	     i) 1009, 1001, 1018
	     ii) 1009, 1018
	     iii) 1001
	     iv) 1018
	
	 1.2 Given the basic ER and relational models, which of the following is INCORRECT?
	   a) An attribute of an entity can have more than one value
	   b) An attribute of an entity can be composite
	   c) In a row of a relational table, an attribute can have more than one value
	   d) In a row of a relational table, an attribute can have exactly one value or a NULL value
	
	 1.3 Which of the following are introduced to reduce the overheads caused by the log-based recovery?
	     i) Checkpoints
		10

ii) Indices
iii) Deadlocks
iv) Locks

1.4 Which of the following protocols ensures conflict serializability and safety from deadlocks?
- i) Two-phase locking protocol
- ii) Time-stamp ordering protocol
- iii) Graph based protocol
- iv) None of the mentioned

1.5 Which of the following is a procedure for acquiring the necessary locks for a transaction where all necessary locks are acquired before any are released?
- i) Record controller
- ii) Exclusive lock
- iii) Authorization rule
- iv) Two phase lock

1.6 Transaction processing is associated with everything below except
- i) Conforming an action or triggering a response
- ii) Producing detail summary or exception report
- iii) Recording a business activity
- iv) Maintaining a data

1.7 Each modification done in database transaction are first recorded into the
- i) Hard drive
- ii) Log
- iii) Disk
- iv) Datamart

1.8 Which-one ofthe following statements about normal forms is FALSE?
- i) BCNF is stricter than 3 NF
- ii) Lossless, dependency -preserving decomposition into 3 NF is always possible
- iii) Loss less, dependency – preserving decomposition into BCNF is always possible
- iv) Any relation with two attributes is BCNF

1.9 Empdt1(empcode, name, street, city, state, pincode).
For any pincode, there is only one city and state. Also, for given street, city and state, there is just one pincode. In normalization terms, empdt1 is a relation in
- i) 1 NF only
- ii) 2 NF and hence also in 1 NF
- iii) 3NF and hence also in 2NF and 1NF
- iv) BCNF and hence also in 3NF, 2NF and 1NF

1.10 For select operation the _____ appear in the subscript and the _____ argument appears in the parenthesis after the sigma.

	i) Predicates, relation ii) Relation, Predicates iii) Operation, Predicates iv) Relation, Operation	
Q1 (B)	Attempt any FIVE questions out of the following (any 5 out of 7) 1. Give the differences between Physical and logical Data Independence 2. Design a union/category ER model for a motor-vehicle sales company 3. What is lossless decomposition? List desirable properties of decomposition. 4. Give an SQL example for group by having clause 5 Explain rollback state of transaction. 6. What is the use of check points in transaction 7. List the steps used in heuristic query optimization	10
Q. 2	Consider the employee database given : employee(<u>employee-name</u>, street, city,date-of-join) works(<u>employee-name</u>, company-name,salary) company(<u>company-name</u>,city) manages(<u>employee-name</u>, manager-name**)** Give the SQL queries for each of the following queries. -Give all managers of 'Reliance corporation' a 18% raise in salary -Find all the employees who live in the same city and on the same street as their manager. - Find the number of employees working for each department -Delete the employee Ram Durga belonging to Amazon Company.	10
Q. 3	Give the differences between Compute the closure the following set F of functional dependencies for the relational schema r(A,B,C,D,E) A->BC ,CD->E, B->D,E->A - List the candidate keys of R - Also suppose that we decompose the above schema r(A,B,C,D,E) into r1(A,B,C) r2(A,D,E). Show that this decomposition is a lossless decomposition assuming same set of functional dependencies holds. OR Show the transaction states diagram. Explain the desirable properties of	10

	transaction and their significance	
Q 4	Why wait for graphs are used . With example explain Deadlock prevention methods OR With example explain view serializeable schedule? is it Recoverable Schedule justify your answer? Are there any circumstances under which it would be desirable to allow non-recoverable schedule	10