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CENTRAL UNIVERSITY OF HARYANA

End Semester Examinations June 2022

Programme: B.Tech(CSE) | **Session: 2021-22**

Semester: 4th | **Max. Time: 3 Hours**

Course Title: Database Management Systems | **Max. Marks: 70**

Course Code: BT CS 401

Instructions:

1. Question Number one is compulsory and carries total 14 marks (Each sub Question carries two Marks).
2. Question Numbers 2(two) to 5(five) carry fourteen marks each with internal choice.

Q1			(7X2=14)
	A	Differentiate between instance and schema.	
	B	Differentiate Forward recovery and Backward recovery.	
	C	With an example Justify the statement "Multivalued dependencies are consequences of 1NF". Also discuss how multivalued dependencies are eliminated with example.	
	D	Explain the different data types in SQL.	
	E	Differentiate Immediate Update and Deferred Update	
	F	What are Assertions? Give example	
	G	Discuss the significance of indexing in databases.	
			(1X14=14)
Q2		What is Entity set? And also define Relationship set. List and explain the symbols used to draw ER Diagram with a suitable example.	
OR			
Q2	A	List and explain various data models used for database design.	
	B	Explain the operation of two-tier client/server architecture for RDBMS. Give its various applications.	
			(1X14=14)
Q3	A	Explain the following SQL constructs with examples: (a) *order by* (b) *group by* and *having* (c) *as select* (d) *like*	
	B	Explain in detail about various key constraints used in database system.	
OR			
Q3		Consider the following schemas: **Sailors (sid, sname, rating, age)** **Reserves (sid, bid, day)** **Boats (bid, bname, color)** Write the following queries in relational algebra:	

		a) Find the name of sailors who have reserved boat 103. b) Find the names and ages of sailors with a rating above 7. c) Find the names of sailors who have reserved a red boat. d) Find the sname, bid, and day for each reservation. e) Find the name of sailors who have reserved at least one boat.	
			(1X14=14)
Q4		What is normalization and why is it done? Explain the various normal forms with example.	
OR			
Q4	A	What is serializable schedule? Give an example of conflict serializable and view serializable schedule.	
	B	List and explain various issues while transactions are running concurrently in DBMS.	
			(1X14=14)
Q5		How the recovery control is managed in distributed systems? Discuss with example.	
OR			
Q5	A	What is checkpoint? Discuss its significance in backup and recovery techniques.	
	B	Write and explain optimistic concurrency control protocol.	