

(Please write your Exam Roll No.)

Exam Roll No. ....

## END TERM EXAMINATION

SEVENTH SEMESTER [B.TECH.] DECEMBER 2016

Paper Code: ETCS-423

Subject: Advanced DBMS

Time: 3 Hours

Maximum Marks: 75

Note: Attempt any five questions including Q no.1 which is compulsory.

- Q1 Differentiate between the following:- (5x5=25)
- (a) SQL and Relational Algebra
  - (b) Distributed database and object oriented database
  - (c) Schema and Instance
  - (d) Dense and Sparse Index
  - (e) Data Definition and Data manipulation language
- Q2 (a) Explain 3-level architecture of DBMS. What are different types of Database users and explain network view mode of Database. (6)
- (b) Write a trigger which modify the inventory of book, when it is issued to someone. Make assumptions if needed. (6.5)
- Q3 (a) Discuss Shadow paging and log-based recovery in term of transaction control. (6.5)
- (b) Discuss view equivalent and serial schedule. Identify whether the following schedule is serizable or not? (6)

T1	T2
Read (A,t)	
t=t+100	
Write (A, t)	
	Read (A,S)
	S=S*2
	Write (A,S)
Read (B,t)	
t=t+100	
Write (B,t)	
	Read (B,S)
	S=S*2
	Write (B,S)

- Q4 (a) Explain weak and storing Entity sets with illustration. (6)
- (b) What is shared Database access mechanism? (6.5)
- Q5 (a) What undesirable dependencies are avoided when a relation is in 2NF? What undesirable dependencies are avoided when a relation is in 3NF? Explain BCNF. (6.5)
- (b) What is the lossless (or nonadditive) join property of a decomposition? Why is it important? (6)
- Q6 (a) What is the system log used for? What are the typical kinds of records in a system log? (6)
- (b) Discuss the atomicity, durability, isolation, and consistency preservation properties of a database transaction. (6.5)
- Q7 (a) Discuss how serializability is used to enforce concurrency control in a databasesystem. Why is serializability sometimes considered too restrictive as a measure of correctness for schedules? (6)
- (b) Discuss the problems of deadlock and starvation, and the different approaches to dealing with these problems. (6.5)
- Q8 (a) Develop an ER schema for your University. Map this schema into a relational schema and specify all primary keys and foreign keys. (6.5)
- (b) Discuss the UNDO and REDO operations and the recovery techniques that use each. (6)

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