Printed Pages : 3

NMCA-313

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 214319

Roll No.

M. C. A.

(SEM. III) (ODD SEM.) THEORY EXAMINATION, 2014-15

DATABASE MANAGEMENT SYSTEM

Time : 3 Hours] [Total Marks : 100

1 Attempt any **four** parts : 5×4=20

(a) Write short notes on triggers and cursors.

(b) What are the different data types used in SQL?

(c) Explain integrity constraints. Also describe their importance.

(d) Explain the advantages of distributed DBMS.

(e) Explain ACID properties of transaction.

2 Attempt any **four** parts : 5×4=20

(a) Are normal forms alone sufficient as a condition for a good schema design? Explain.

(b) What is data independence? What is the difference between physical and logical data schema?

(c) Prove with suitable example that BCNF is stronger than 3NF.

(d) What are the characteristics that distinguish a Database Management System from traditional file processing system?

(e) A weak entity set can always be made into a strong entity set by adding to its attributes of its identifying entity set. Outline what sort of redundancy will result if we do so?

3 Attempt any **two** parts : **10×2=20**

(a) For relation R={A,B,C}, the given set of FD's are F = {A→B, B→C, A →BC, AB→C}. Find the minimal cover for this set of FD's.

(b) Prove that if in a relational schema, the number of attributes in a primary key is one, the schema will be at least in 2NF.

(c) What do you mean by good decomposition of the relation R? Consider a relation R = {A, B, C, D, E, F, G, H} and having set of FD's F={A→BC, F→A, CD→E, B→D, A→FGH}. State whether the following decomposition of relation R is lossless join decomposition or lossy?

4 Attempt any **two** parts : **10×2=20**

(a) What is a deadlock? Discuss any one deadlock detection algorithm in database transaction processing.

(b) What is the system log used for? What are the typical kinds of records in a system log? What are transaction commit points, and why are they important?

(c) What do you mean by a schedule? When a schedule is called serializable? What are conflict serializable schedules? Show whether the following schedules are conflict equivalent or not?

Schedule 1	
T1	T2
Read (A)	
Write (A)	
	Read (A)
	Write (A)

Schedule 2	
T1	T2
	Read (A)
Read (A)	
	Write (A)
Write (A)	

5 Attempt any **two** parts : **10×2=20**

(a) What are different locking techniques for concurrency control?

(b) Describe multi-version concurrency control. What are its benefits and disadvantages in comparison to locking?

(c) Describe log-based recovery algorithm to recover from transaction failure.