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**SVKM's NMIMS**  
**MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING**

Programme: B.Tech/ MBA Tech (IT)

Year: II

Semester: III

**Academic Year: 2019-20**

Subject: Database Management Systems

Date: 16 November 2019

Marks: 100

Time: 2.00 pm - 5.00 pm

Durations: 3 (Hrs)

No. of Pages: 2

**Final Examination (2019-20)**

**Instructions:** Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is provided for their use.

- 1) Question No. 1 is compulsory.
- 2) Out of remaining questions, attempt any 4 questions.
- 3) **In all 5 questions to be attempted.**
- 4) All questions carry equal marks.
- 5) **Answer to each new question to be started on a fresh page.**
- 6) **Figures in brackets on the right hand side indicate full marks.**
- 7) **Assume suitable data if necessary.**

Q1.

- A) Explain major disadvantages of file processing system. [5]
- B) Construct an ER diagram for a CAR insurance company whose customer own one or many cars each. Each car has associated with it zero to any number of recorded accidents. [5]
- C) Explain Set operations in SQL with example. [5]
- D) What is Schema and instance of the database? [5]

Q2.

- A) Write a short note on following [10]
  - a) Function in SQL
  - b) Stored procedure in SQL.
- B) Explain any five fundamental relational algebra operations with example. [10]

Q3.

- A) What are different aggregate functions in SQL? Explain each with example. [10]
- B) What is Normalization? Explain 2NF, 3NF, 4NF and 5NF in detail. [10]

- Q4. [10]  
 A) What is transaction? Explain ACID properties of transaction and their need in detail. [10]  
 B) Write a note on following  
 1. Assertion (3M)  
 2. Authorization (3M)  
 3. View of data (4M)
- Q5. [10]  
 A) What is hashing? Explain dynamic hashing. [10]  
 B) What is DBMS? Explain following terms with example  
 1. Super key 2. Primary key 3. Foreign key 4. Candidate key
- Q6. [10]  
 A) What is Trigger? Explain before trigger and after trigger with example. [10]  
 B) Explain the Shadow copy scheme use to maintain atomicity and durability of database system.
- Q7. [10]  
 A) What is serializability? Explain conflict serializability. [10]  
 B) 1) What is DDL, DML, DCL, and TCL [10]  
 2) Write the following inserts, deletes or updates in SQL, using the university Schema given as:  
 Instructor(ID, name, dept\_name, salary)  
 Student(ID, name, dept\_name, tot\_cred)  
 Section(course\_id, sec\_id, semester, Year, building)  
 Course(course\_id, title, dept\_name, credits)  
 I. Increase the salary of each instructor in the Comp. Sci. department by 10%.  
 II. Delete all courses that have never been offered (that is, do not occur in the *section* relation)  
 III. Insert every student whose tot\_cred attribute is greater than 100 as an Instructor in the same department, with a salary of \$10,000.
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