NATIONAL INSTITUTE OF TECHNOLOGY, KURUKSHETRA

THEORY EXAMINATION
Question Paper

ROLL NO._____

Month and Year of the Examination: **December 2018**

Programme: **B.Tech. (Computer Engineering)**

Semester: **3rd**

Subject: **Database Systems**

Course No.: **CSPC 25**

Maximum Marks: **50**

Number of Questions to be attempted: **5**

Time allowed: **3 Hours**

Total No. of Questions: **6**

Total No. of Pages used: **1**

Que1.	**(a)**	Describe the three-schema architecture. Why do we need mappings between schema levels? How do different schema definition languages support this architecture ?	**(5)**
	(b)	Define the following terms: *Normalization, Normal Forms, 1NF, 2NF, 3NF, BC NF* ?	**(5)**
Que2.	**(a)**	Explain schemas, instances and data model types with examples.	**(5)**
	(b)	Discuss responsibilities of DBA.	**(5)**
Que3 .	**(a)**	What is a minimal set of functional dependencies? Does every set of dependencies have a minimal equivalent set? Is it always unique?	**(5)**
	(b)	What do you mean by serializability and describe types of serializability with example.	**(5)**
Que4	**(a)**	What is cascading rollback and types of schedules with example	**(5)**
	(b)	Describe two phase commit and locking protocols and its types.	**(5)**

Que5. (a)	Suppose that we have a relation **Marks (student-id, score)** and we wish to assign grades to students based on the score as follows: grade F if score < 40, grade C if 40 ≤ score < 60, grade B if 60 ≤ score < 80, and grade A if 80 ≤ score. Write SQL queries to do the following : **i.** Display the grade for each student, based on the marks relation. **ii.** Find the number of students with each grade.	(5)
(b)	Explain domain and tuple calculus with example.	(5)
Que6.	Write short note on following topics:- • ACID properties • Deadlock and starvation or Comparison between embedded and dynamic SQL	(5) (5)