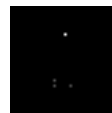
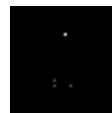
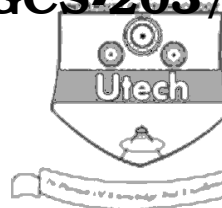


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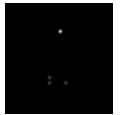
**CS / M.TECH (CSE) / SEM-2 / PGCS-203 / 09****ADVANCED DBMS****SEMESTER – 2**

Time : 3 Hours]

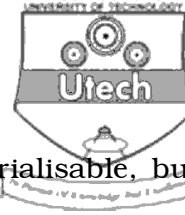
[Full Marks : 70

*The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*Answer Question No. 1 and any *four* from the rest.

1. Answer any *five* of the following : 5 × 2
- i) Which index type (dense / sparse) will be suitable for locating a record faster ?
 - ii) What is atomicity property of transaction ?
 - iii) What is the function of exclusive lock ?
 - iv) What is horizontal data fragmentation ?
 - v) Define view serializability.
 - vi) What is vertical data fragmentation ?
2. a) Explain in brief sparse and dense index. 6
- b) What do you mean by index sequential file ? 3
- c) Explain deletion algorithm of B^+ tree using example. 6
3. a) Why we need query optimisation ? 5
- b) Write down the steps involved in processing a query. 5
- c) How query tree is used to represent a relational algebra expression ? Explain with example. 5



4. a) What are ACID properties of a database transaction ? How are they selected to the concurrency control ?



5 + 5

- b) Every conflict serialisable schedule is also view serialisable, but there are view serialisable schedules that are not conflict serialisable. Is the comment true or false ? Prove your answer.

5

5. a) Teacher (T_name, emp_no, dept)

Subject (sub_no, sub_title, credit)

Student (s_name, roll_no, hostel)

Taught_by (emp_no, sub_no)

Taken_by (sub_no, roll_no, status, marks)

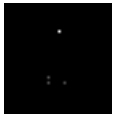
Write the SQL query for the following using the above mentioned database schema :

5 × 2

- i) Find the teacher name who teaches subject 'Advanced DBMS'.
- ii) Find the name of the students who are studying the subject 'Advanced DBMS'.
- iii) Find out the number of student in each hostel.
- iv) Find out the name of the students who belong to 'Vivekananda' hostel.
- v) Find out the subject name which is taught by 'Dr. A. K. Sinha'.

- b) What are spatial and temporal database ?

5



6. a) What are the different types of transaction failure ? 5
- b) Explain in brief log based recovery and shadow paging recovery. 5 + 5
7. a) Explain the features of distributed versus centralised database. 6
- b) Describe a reference architecture for distributed database. 9
8. Write short notes on any *three* of the following : 3 × 5
- a) Data mining
- b) View serializability
- c) Two phase locking protocol
- d) Data warehousing
- e) Object Oriented Database.



END