

S. E (MPN)
TV

Database system

10/6/06

Con. 2173-06.

(REVISED COURSE)

TV-8136

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** questions out of remaining **six** questions.
(3) Make **suitable** assumptions if needed.

1. (a) (i) List the disadvantage of the file processing system. Explain how database system can overcome this. 20
(ii) What is shadow paging ?
(b) (i) What are the desirable properties of decomposition.
(ii) Explain timestamp ordering protocol.

2. (a) What is transaction ? Discuss state transition diagram and properties of a transaction. 20
(b) Explain log based and check point based recovery mechanism in DBMS.

3. (a) What do you understand by concurrency control ? Explain view serializability and conflict serializability with proper example. 20
(b) What is the effect of Deadlock on DBMS ? How it is detected ? Discuss different types of deadlock avoidance schemes ?

4. (a) What do you mean by Authorization and Authentication in DBMS ? Explain how it is implemented in SQL with suitable example. 20
(b) Explain with suitable example various ways for organisation of records in a file.

5. (a) What is Normalization ? What is its importance in DBMS design. 20
Explain 1NF, 2NF, 3NF, and BCNF with suitable examples.
(b) Construct EER diagram for the hospital management system. It should include the patients admitted in the ward, doctors allocated to the ward, treatment/medicine given to the patient and discharge of the patient. Assume required data.

6. (a) What is a view ? How is it defined and stored ? What are the benefits and limitations of view ? 20
(b) Consider the insurance database where primary keys are underlined and answer the queries using SQL/Retational Algebra.
Person (driver_id, Name, address)
Car (License, model, year)
Accident (report_no, data, location)
owns (driver_id, License)
Participated (driver_id, license, report_no, damage amount) :
(i) Add a new accident to database assume any values for required attributes.
(ii) Delete 'Alto' belonging 'HMB' updated the damage amount for the car with license no 'xyyy 1000' in the accident with report number 'AR 2197' to \$ 1000.
(iii) Find the total number of people who owned cars that were involved in accidents in 2995.
(iv) Find the number of accident in which car belonging to 'HMB' were involved.

7. Write short notes on (any **four**) :- 20
(a) B+ Tree
(b) Assertions
(c) DBA
(d) Trippers
(e) Indexing and hashing.