

Con. 5375-09.

SP-8156

( 3 Hours )

[ Total Marks : 100

- N.B. :** (1) Question No. 1 is compulsory.  
 (2) Attempt any four questions out of remaining six questions.  
 (3) Assume any suitable data wherever required but justify the same.

1. Consider the insurance database, where Primary Keys are underlined – 20

person (driver\_id, name, address)  
 car (license, model, year)  
 accident (report\_No, date, location)  
 owns (driver\_id, license)  
 participated (driver\_id, car, report\_number, damage\_amount).

Construct the following SQL queries for this relational database :-

- (a) Find the total number of people who owned cars that were involved in accident/s in 2008.  
 (b) Find the number of accident/s in which the cars belonging to "Ajay Joshi" were involved.  
 (c) Add a new accident to the database; assume any values for required attributes.  
 (d) Delete AI to Lxi belonging to "Ajay Joshi". 10
2. (a) What are the advantages of Encrypting data stored in the database. 10  
 (b) Explain in detail why 4NF is a normal form more desirable than BCNF. 10
3. (a) Explain in detail Deadlock Handling in database system. 10  
 (b) Explain in detail difference between Persistent and Transient objects. How is persistence handled in typical object oriented system ? 10
4. (a) What is the importance of recovery ? Explain in detail Log-Based Recovery. 10  
 (b) Explain the distinction between closed and open hashing. Discuss the relative merits of each technique in database applications. 10
5. (a) Explain relational algebra operators. 10  
 (b) List the ACID properties. Describe in detail usefulness of each. 10
6. (a) Explain in detail Database System structure. 10  
 (b) With suitable example explain in detail E-R diagram and its advantages. 20
7. Write a short notes on any four of the following :-
- (a) ORDBNS
  - (b) Data Base Administrator (DBA)
  - (c) View
  - (d) OODBMS
  - (e) Aggregate Functions.