Time: 3 hours   Marks: 80

N. B: 1. Question 1 is compulsory.
2. Attempt any three out of remaining.
3. Assume suitable data if required.

Qu-1   **Attempt any four questions**

a) Consider a suitable relation schema and perform nested query and query using group by clause.   5

b) Explain ECA Model.   5

c) What is view? Discuss the difference between a view and base relation.   5

d) Define a lock and describe the types of locks used in concurrency control.   5

e) List differentiation between OLTP and OLAP   5

Qu-2   a) What is SQLJ used for? Describe the two types of iterators available in SQLJ.   10

Qu-2   b) Differentiate between static and dynamic SQL? Which one is more efficient?   10

Qu-3   a) Describe ARIES recovery algorithm with example.   10

b) Explain Indexing Technique in the database.   10

Qu-4   a) Find the cost of data transfer over the network for following details. Employee   10
table is at site 1 with 10,000 rows. Each row size is 100 bytes. Department table
is at site 2 with 100 rows. Each row size is 35 bytes. Find optimum solution for
data transfer if following query is executed from site 3.
Query: For each employee retrieve the emp_name and dept_name where
employee works.
Size of result tuple is 40 bytes.

b) Explain different ways of concurrency control in DDBMS   10

Qu-5   Consider a data ware house for a hospital where there are three dimensions: 20
1) Doctor 2) Patient and 3) Time
And two measures count and charge.
Using above example perform following
i)   STAR schema
ii)   Snowflake schema
iii)   Rollup & Drilldown operations
iv)   Pivot operation
v)   Slice and Dice operations

Qu-6   Explain the following concepts with the help of example.

a) SQL Injection   5

b) Mandatory Access Control   5

c) Statistical Database   5

d) Timestamp Ordering Protocol   5

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