it 5 sem advanced database management systems dec 2015

(Time: 3 Hrs)   Marks: 80

N.B. : 1. Question no. 1 is **compulsory**.
   2. Solve any **Three** questions out of remaining **Five** questions.

Q-1 a) Justify Write-Ahead Logging (WAL) protocol for a recovery algorithm that 5
         requires both UNDO and REDO.

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

     c) Explain Factless Fact Table.   5

     d) What is role of metadata in data warehouse?   5

Q-2 a) What are the different types of SQL injection attacks? What risks are   10
         associated with it? Explain any one attack in detail.

     b) Vaidehi Foods & Beverages is a new company which produces Dairy, Bread   10
         and Cookies products with production unit located at Kharghar, Navi
         Mumbai. These products are sold in selected regions of India. They have
         sales units at Mumbai, Pune, Satara, Sangli and Kolhapur. The President of
         the company wants sales information.

         1. Find the dimensions of data warehouse for given problem statement and
            justify your answer.

         2. State and represent the concept hierarchy for each dimension.

         3. If the president of company wants the report: The number of items sold
            and income in each region for each product with time.

            3.1. Explain at which concept hierarchy level the query will be?

            3.2. Write ROLAP/MOLAP query.

         4. Describe the Rollup or Drilldown OLAP operations.

Q-3 a) What are the roles of the Analysis, Redo and Undo phases in ARIES? Explain 10
         with suitable example.

     b) Consider the following database that has to be distributed: 10

                 PROJ (**PNO**, PNAME, BUDGET)
                 PAY (**TITLE**, SALARY)
                 EMP (**ENO**, ENAME, TITLE)
                 ASG (**ENO, PNO**, RESPONSIBILITY, DURATION)

                 1. Show 2 examples of horizontal fragmentation.
                 2. Show 1 example of derived fragmentation.
                 3. Show 1 example of vertical fragmentation.

Turn over

Q-4 a) Design a schema in SQL for a Library System. Show one example each for Primary   10
key and Foreign Key constraint. Create one suitable ECA example to enforce the
Library constraint.

     b) Explain different types of transparencies in distributed databases in detail.   10

Q-5 a) Explain with suitable example object identity, object structure and type   10
constructors in OODB's.

     b)   10

PERSON

SSN	Name	Income	Address	City	State	Zip	Sex	Last_Degree

Query1: SELECT COUNT (*) FROM PERSON WHERE <condition>;
Query2: SELECT AVG (Income) FROM PERSON WHERE <condition>;

Consider the PERSON relation and two queries as shown:
1. Give *<condition>* so it is possible to infer the values of individual tuples.
2. State clearly the remedies by which the possibility of inferring individual
information from statistical queries is reduced.
3. Explain in short Statistical Database Security with above relation and queries.

Q-6 a) With suitable relational schema give at least two queries of   10
                  1. Simple Query,
                  2. Complex Retrieval Queries using Group By,
                  3) Recursive Queries and
                  4) Nested Queries

     b) Attempt any **Two** of the following   10
        i) What is meant by granting and revoking a privilege?
        ii) Explain in short the concerrency control in distributed databases.
        iii) Explain in detail the *Information Delivery Component* of data warehouse
        architecture.