ote: (i) First question is compulsory and answer any four questions from the
remaining six questions. Each question carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same
order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1. a) What are the advantages of DBMS?
   b) Define normalization.
   c) List the properties of transaction.
   d) Define relational algebra.
   e) What are the different types of aggregate operations in SQL?
   f) Describe functional dependency.
   g) Write the users of data base system.

2. a) What is the purpose of Data base systems and explain in detail.
   b) Explain any four different relational Algebra operations.

3. a) Analyze E-R Model with suitable example.
   b) Describe domain atomic and first normal form with an example.

4. a) Elaborate dense and sparse index with examples.
   b) Explain serializability with examples.

5. a) Describe tuple relational calculus.
   b) Explain integrity constraints.

6. a) What is a nested query and give a suitable example?
   b) Describe trigger with syntax.

7. a) Write the differences between pessimistic and optimistic concurrency control scheme
   b) Explain BCNF.

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