

- NOTE:**
1. All questions are compulsory.
  2. Figures to the right indicate full marks.

- Q.1. a. Explain all cardinality constraints and participation constraints used in ER model. (8)
- b. What are the fundamental operations used in relational algebra ? (7)
- (OR)
- b. What are views ? What are its advantages? Explain with query example. (7)
- Q.2. a. Write a short note on - 1. Specialization. (8)
2. Generalization. (7)
- b. What do you mean by Weak Entity set ? (7)
- (OR)
- b. Design an E-R diagram for a railway reservation system. Customer reserves ticket. Railway has trains, trains contains boggies and boggies contain seats. Train has particular schedule provided to customers. (7)
- Q.3. a. Consider following tables - (8)
1. Employee ( empno, ename, city ).
  2. Department ( deptno, deptname, location )
  3. Working ( empno, deptno )
- Solve following queries -
1. How many employees works in each department ?
  2. Display employee details with their departments.(solve with subquery).
  3. Display employee details if and only if any of the employee living in city ' Mumbai '. (Solve with ANY operator ).
  4. How many employees living in each city ?
- b. What do you mean by join ? Explain equi-join and left-join with proper example. (7)
- (OR)
- b. What do you mean by constraint ? Explain primary key constraint and foreign key constraint with suitable example. (7)
- Q.4. a. What are triggers ? How trigger achieves data integrity? Explain all types of triggers. (8)
- b. What is an index ? Explain with syntax. Give example of it. (7)
- (OR)
- b. Create a procedure for addition of two numbers. Execute it. (7)

-X-X-X-X-