

**J-9/2050**

**DATABASE MANAGEMENT SYSTEM-201**

(Semester-II)

Time : Two Hours]

[Maximum Marks : 70

**Note** : Attempt any *four* questions. All questions carry equal marks.

- I. What are the various operations used in Relational Algebra? Discuss each with an example.
- II. What is database modeling? How is E-R model different from other data models? What are the main advantages of the E-R model?
- III. What is File Processing System? Explain Difference between File processing and database systems.
- IV. Write the relational algebraic expression for the following queries using the given schema:  
Project (Pno, PName)  
Employee (Eno, EName)  
Assigned To (Pno, Eno)  
(a) Find name of employees working on project no. 101.

- (b) Find details of employees who are working on project named "DBMS".
- (c) Find employee number of employees working on project on which employee number 1 is also working.

V. Define database recovery. What do you mean by forward recovery and backward recovery? What are the various recovery data collection techniques?

VI. Consider the following relations :

Hotel {hotelNo, name, address }

Room {roomNo, hotelNo, type, price}

Booking {hotelNo, guestNo, dateFrom, dateTo, roomNo }

Guest {guestNo, name, address }

VII. Write the SQL statements for the following:

- (a) List the names and addresses of all guests in Chandigarh, alphabetically ordered by name.
- (b) List all family rooms with a price below Rs. 400 per night, in ascending order of price.
- (c) How many hotels are there?

VIII. What are the first three normalization in relational data base model? Explain them with example.

IX. (a) Why do we need to normalize databases?

- (b) What are weak entity sets? How a weak entity set can be converted into strong entity set?

- (c) What is the cardinality of a relation in an E-R diagram?
  - (d) What is the need for DBMS?
  - (e) Differentiate between strong and weak entity sets.
  - (f) How primary keys are useful?
  - (g) What are the advantages and disadvantages of Hierarchical model?
  - (h) Why do we need aggregation in DBMS?
  - (i) How SQL acts as a DML?
  - (j) What is the use of SELECT, and CREATE command in SQL?
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