

Time: 3 hours**Marks: 80**

- N.B.:** 1. Question No.1 is compulsory.
 2. Answer any three out of remaining questions.
 3. Assume suitable data if necessary.
 4. Figures to the right indicate full marks.

Q1. Attempt All questions

20M

- (a) Explain the need of normalization in database.
- (b) Discuss select and where clause in SQL.
- (c) Discuss various ER notations.
- (d) Explain the role of JDBC in database applications.

Q2.

- (a) Discuss normalization process to improve the database design.
- (b) Explain relational algebra with suitable examples in detail.

10M

10M

Q3

- (a) Draw EER diagram for Train Ticket Booking Information System
- (b) Draw and explain notations in EER diagram

10M

10M

Q4.

- (a) Explain how various DDL and DML commands used in SQL with example
- (b) Write SQL Syntax for(Assume data wherever required)
- (i) Create flight table(flight_id,name,source_station,destination_station,duration(in hours),cost)
- (ii) Create passenger table (pid,name,phone_number,flight_id) with flight_id as foreign key.
- (iii) Arrange flights in descending order of cost.
- (iv) Find flight name which passenger no 1 had board.
- (v) Find destination_station for flight no E123.

10M

10M

Q5

- (a) Discuss functional dependencies in detail
- (b) Write relational algebra query for(Assume data wherever needed)
- (i) Find names of students who live in city 'Mumbai from student table
- (ii) Find department of student whose roll_no is 2 from info table
- (iii) Find name of students whose marks are greater than 22

10M

3M

3M

4M

Q6.write short note on

20M

- (a) Procedures in SQL
- (b) Order by and Group by in SQL
- (c) Integrity constraints in SQL
- (a) Discuss functional dependencies in detail.
