QP Code : **30760**

(3 Hours)   [Total Marks : 80

N. B. : (1) Question No.1 is **compulsory**.
         (2) Solve any **three** questions out of remaining **five** questions.
         (3) Assume suitable data if necessary.

1. (a) List all functional dependencies satisfied by the relation   5

X	Y	Z
X1	Y1	Z1
X1	Y2	Z1
X2	Y2	Z1
X2	Y2	Z1

    (b) Explain Generalization and Specialization.   5
    (c) Explain deadlock in brief.   5
    (d) Explain aggregate function with example   5

2. (a) Explain different data models with its advantages and disadvantages.   10
    (b) Draw E-R diagram for Car insurance company that has a set of   10
    customers. Each customer has one or more cars. Each car is zero or
    more accident records.

3. (a) Explain following terms   10
            (i)   Primary key
            (ii)   Group by clause
            (iii) Lock point
            (iv)   Total participation
            (v)   Data independence
    (b) What is view? How it is created and stored?   10

4. (a) What is JOIN? Explain different types of JOIN along with example.   10
    (b) Consider the following employee database   10
    Employee (emp_name,street,city,date _of_ joining)
    Works (emp name, company _name, salary)
    Company (company_ name, city)
    Manages (emp _name,manager _name)

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Write SQL queries for following
  (i) Modify the database so that 'Deepa' lives in 'Pune'
  (ii) Give all employees of 'XYZ corporation' a 10% rise in salary
  (iii) List all employees who lives in the same city as heir company city
  (iv) Display all employees who joined in the month of 'March'
  (v) Find all employees who earn more than average salary of all employees of their company.

5. (a) Define Normalization? Explain 1NF, 2NF and 3NF with example   10
   (b) Consider the SQL query given below. Draw initial query tree and   10
       transfom this initial query tree using heuristic query optimization.
       SELECT p.ticketno
       FROM Flight as F, Passager as P, Crew as C
       WHERE F.flightno=c.flightno AND
           F.Date= '06 -23-15' AND
           F.to= 'Mumbai' AND
           P.name=C.name·

6. (a) Define transaction? Explain transaction state diagram and properties of   10
       transaction
   (b) Explain Differed database modification and immediate data base   10
       modification and their difference in context of recovery.

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