

[Time: 3 Hours]

[ Marks:80]

Instructions

- (1) Q.1 is Compulsory.
- (2) Solve any three from remaining questions.
- (3) Draw neat diagrams whenever necessary.

- Q.1 a) What is data abstraction and data independence. (10)  
b) Draw Extended E-R diagram for Hospital Management System. (10)
- Q.2 a) Explain types of joins with suitable example. (10)  
b) Write SQL expression for the following queries  
Consider Employee relation (Emp\_no, Emp\_name, Emp\_add, ph\_no, email\_id, salary)  
i) List the employee whose employee number is 100.  
ii) List the Employee whose salary is between 50 K to 1 Lac.  
iii) List the Employees whose name starts with 'Ami'.  
iv) Find 2nd highest salary of Employees.  
v) Create two views on employee table. (10)
- Q.3 a) Explain any five relational algebra operators with suitable example. (10)  
b) Define deadlock and Explain deadlock handling. (10)
- Q.4 a) What is 2PL. Explain its types. (10)  
b) What is Trigger. Explain with Syntax and example. (10)
- Q.5 a) Explain view and conflict serializability with suitable example. (10)  
b) What is normalization. Explain 1NF, 2NF, 3NF with suitable example. (10)
- Q.6 Write note on any two (20)  
a) ACID properties of transaction with example.  
b) Transaction state diagram and explain TCL commands  
c) Types of users in DBMS.