

(Time 3 Hours)

(Total 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

(20)

- (a) Write a short note on DDL Commands.  
 (b) Explain Characteristics of databases.  
 (c) Explain generalization and Specialization.  
 (d) Explain binary relational operations in relational algebra.

Q2.

- (a) Draw and explain DBMS System architecture. (10)  
 (b) Explain stored procedures and functions with example. (10)

Q3

- (a) Draw EER diagram for Library management System. (10)  
 (b) Explain join operations in relational algebra. (10)

Q4.

- (a) Explain steps for Mapping the ER and EER Model to the Relational Model. (10)  
 (b) Write SQL Syntax for (10)

Course Table

Cid	Course_Name	Staff_name	Durati on(in weeks)	fees
1	DBMS	Menon	6	45000
2	PCPF	Rai	4	28000
3	JAVA	Rajput	2	16000
4	DSA	Govilkar	5	32000

Student Table

Sid	name	Location	Cid
1	Anaya	Thane	1
2	Rajiv	Navi_mumbai	4
3	Suyog	Dadar	2
4	Pari	Andheri	3
5	Dhariya	CST	1

- (i) Create above course table also insert values.  
 (ii) Create student table with c\_id as foreign key.  
 (iii) Arrange courses in descending order of fees .  
 (iv) Find name of course student name 'Rajiv 'has enrolled for.  
 (v) List down names of all students whose course duration is more than 3.

Q5

- (a) Define normalization. Explain 1NF, 2NF and 3NF with example. (10)  
(b) Explain Serializability with types. (10)

Q6. write short note on (Any four)

- (a) Role of DBA. (20)  
(b) Need of Normalization.  
(c) Primary key and Foreign key.  
(d) ACID properties.  
(e) Nested and Sub queries in SQL.

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