

# M.Sc.(IT) Sem -2 Examination

**Subject: Data Base Management System**

**Paper No. : 3.**  
**Total Marks: 70**

**Subject Code: 2939**  
**Duration: 2 Hours.**

- Q-1: (A) What is a database? Describe the advantages and disadvantages of using of DBMS [07]  
(B) Explain terms: Data Abstraction and Data Integrity. [07]
- OR**
- Q-1: (A) Draw and explain the three level architecture of the database system. [07]  
(B) Differentiate between logical database design and physical database design [07]
- Q-2: (A) What are the various symbols used to draw an E-R diagram? [07]  
(B) Draw an E-R diagram for Library Information Management System. [07]
- OR**
- Q-2: (A) Compare the four database models (flat file, hierarchical, network and relational). [07]  
(B) What particular features of the relational model account for its popularity? [07]
- Q-3: **(Consider the following relation schemes:**  
Project (Project#, Project\_name, chief\_architect)  
Employee (Emp#, Empname)  
Assigned To (Project#, Emp#)  
Give expression in Tuple calculus and Domain calculus for each of the queries below:  
(A) Get the employee numbers of employees who work on all projects. [07]  
(B) Get the employee numbers of employees who do not work on the COMP123 project [07]
- OR**
- Q-3: (A) Briefly describe all the normal forms in database management system with examples. [07]  
(B) Explain following Relational Algebra Operations with purpose and notations:  
(1) Project (2) Theta Join (3) Natural Join (4) Union  
(5) Intersection (6) Cartesian product (7) Division [07]
- Q-4: (A) What do you mean by database constraints? Explain Primary Key constraint with its characteristics. [07]  
(B) Explain various DDL statements. [07]
- OR**
- Q-4: (A) What are the advantages of structured query language? Explain SELECT statement with all clauses. [07]  
(B) **Consider the following relations:** (3.5 x 2=7)  
S (S#, SNAME, STATUS, CITY)  
SP (S#, P#, QTY)  
P (P#, PNAME, COLOR, WEIGHT, CITY)  
Give an expression in SQL for each of queries below:  
(i) Get supplier names for supplier who supply at least one red part  
(ii) Get supplier names for supplier who do not supply part P2. [07]
- Q-5 (A) Explain the followings:  
(i) Synonyms (ii) Sequence [07]
- Q-5 (B) Explain the following date functions with syntax, purpose and example:  
(1) Add\_months() (2) Last\_day() (3) Months\_between() (4) Next\_day()  
(5) Round () (6) New\_time() (7) Trunc()
- OR**
- Q-5 (A) Explain Grant and Revoke commands with suitable example. [07]  
(B) Explain the following numeric functions with syntax, purpose and example:  
(1) Abs () (2) Power () (3) Round () (4) Sqrt() (5) Exp() (6) Ceil() (7) Mod() [07]