

Code: EE7T5C

**IV B.Tech - I Semester – Regular/Supplementary Examinations  
October - 2019**

**DATABASE MANAGEMENT SYSTEMS  
(ELECTRICAL & ELECTRONICS ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

**PART – A**

Answer *all* the questions. All questions carry equal marks

11 x 2 = 22 M

1.

- a) Differentiate between schema and data model.
- b) Mention any three important advantages of using the DBMS Approach.
- c) Elicit the importance of “Null” Values.
- d) Give an example for total participation and partial participation.
- e) Distinguish Composite Vs Basic attributes and give suitable example.
- f) Write a suitable syntactically correct SQL statement(s) to create example table(s) with attributes having constraints of primary key, foreign key and other properly related attributes.
- g) Define 2<sup>nd</sup> Normal Form.
- h) What is the objective of the normalization?
- i) Mention the desirable properties of relation decomposition.
- j) Mention types of locks.
- k) Define Serializable schedule.

## PART – B

Answer any **THREE** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Explain the three level schema architecture of DBMS. Why do we need mapping among schema levels? How do different schema definition languages support this architecture? Explain. 10 M

b) Give a brief on the following: 6 M

- i) Instance and Schema
- ii) Data abstraction

3. a) Analyse and choose proper attributes to represent the employee and department details as entities and define possible relationships among them and draw an ER diagram to represent the same based on the following. 10 M

10 M

- Every Employee works in a particular department.
- Every department is headed by a person designated as a “Manager”. A Manager may be heading more than one department.
- Every Employee works under a Manager (may not be from same department)
- Department(s) are located in different locations.

b) What are the various Relationship Types? 6 M

4. a) Consider the following schema for a COMPANY database  
: Employee (EmployName, SSN, Address, Sex,  
MonthlySalary, Deptnumber), Department (Deptname,  
Deptnumber, MGRSSN, Deptlocation).  
Analyse and mention different key attributes and  
relationship among entities. 2 M  
Give suitable SQL statements to answer the following  
queries
- i. Retrieve all employees who either work in Deptnumber 4  
and earn over Rs.2,50,000 per year (or) work in  
Deptnumber 5 and earn over Rs.3,00,000 per year. 2 M
  - ii. Retrieve the Social Security numbers of all employees who  
either work in department(s) located in “Vijayawada” or  
directly supervise an employee who works in department  
5. 3 M
  - iii. Retrieve the name and address of all employees who work  
for the “Research” department. 2 M
  - iv. Retrieve the employee details who are working in the same  
department as Employee “Mr. Smith” is working. 2 M
- b) Give a brief on Entity integrity constraint and Referential  
integrity constraints. 5 M

5. a) State the informal guidelines for relational schema design.  
Explain how these informal guidelines used as a measure to determine the quality of relational schema design. 10 M
- b) What is Functional Dependency? Explain types and properties of FD's. 6 M
6. a) How to test serializability of a schedule? Explain with an example. 8 M
- b) Explain the time stamp based protocol for concurrency control in a DBMS. 8 M