

VR23



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VELAGAPUDI RAMAKRISHNA

**SIDDHARTHA ENGINEERING COLLEGE**

(AUTONOMOUS)

II/IV B.Tech. DEGREE EXAMINATION, DECEMBER - 2024

Third Semester

**AI&DS**

23ES3104 DATABASE MANAGEMENT SYSTEMS

*Time: 3 hours*

*Max. Marks: 70*

*Part-A is compulsory*

*Answer One Question from each Unit of Part - B*

*Answer to any single question or its part shall be written at one place only*

**PART-A**

**5 x 2 = 10M**

1. a. What is Assertion in SQL? **(CO1 K2)**
- b. List any two DBMS Models. **(CO2 K1)**
- c. What is Functional Dependency? **(CO3 K2)**
- d. Define basic 2PL, strict 2PL. **(CO4 K2)**
- e. What are the deadlock prevention methodologies? **(CO5 K2)**



**23ES3104**

**PART-B**

**4 x 15 = 60M**

**UNIT-I**

2. a. Explain about the DDL, DML commands? **(CO1 K2) 7M**  
b. Define DBMS. Explain the advantages of DBMS over traditional file system? **(CO1 K2) 8M**

(or)

3. a. Write SQL Queries for following set of tables:  
EMPLOYEE (EmpNo, Name, DoB, Address, Gender, Salary, DNumber)  
DEPARTMENT (DNumber, Dname, ManagerEmpNo, MnagerStartDate).  
i) Display the name of highest salary paid 'female' employee.  
ii) Which employee is oldest manger in company?  
iii) Display the name of department of the employee 'SMITH'. **(CO1 K3) 8M**  
b. Illustrate Integrity and Key Constraints with suitable examples. **(CO2 K2) 7M**

**UNIT-II**

4. a. How to maintain class hierarchies in ER-Diagrams? Explain with employee database. **(CO2 K3) 7M**  
b. What is a weak entity type? How to model it? Explain with suitable example. **(CO2 K2) 8M**

(or)

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5. a. Discuss in detail the operators SELECT, PROJECT and UNION with suitable examples. **(CO2 K2) 8M**  
b. Describe different types of joins in relational algebra with examples. **(CO2 K2) 7M**

**UNIT-III**

6. a. Explain the following  
i. Primary Key  
ii. Candidate Key  
iii. Foreign Key  
iv. Super Key **(CO3 K2) 8M**  
b. What is multi valued dependency? State and explain fourth normal form based on this concept. **(CO3 K2) 7M**

(or)

7. a. What are the ACID properties of the transaction? **(CO4 K2) 7M**  
b. Compute closure of set of functional dependency. Explain with a suitable example schema. **(CO4 K3) 8M**

**UNIT-IV**

8. a. Explain the phases of ARIES Algorithm. **(CO5 K2) 8M**  
b. Explain time-stamp based concurrency control. **(CO5 K2) 7M**

(or)

9. a. Does two phase locking protocol ensure conflict serializability? Justify your answer with appropriate examples. **(CO5 K4) 7M**  
b. Explain Hash based indexing with example. **(CO5 K2) 8M**