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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR  
(AUTONOMOUS)

**B. Tech II Year I Semester Supplementary Examinations November-2022**  
**DATABASE MANAGEMENT SYSTEMS**

(Common to CSE, CSIT &amp; CSM)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 a Define Database. Discuss about applications of Database Systems. L1 6M  
b Write about logical database design (ER to Relational) with suitable examples. L2 6M

**OR**

- 2 a Explain the Architecture of Database with a neat diagram. L3 6M  
b Give an example of Attribute and List various types of attributes. L1 6M

**UNIT-II**

- 3 a Discuss the candidate key, primary key, super key, composite key and alternate key. L2 6M  
b Distinguish between two set theoretic operations of relational algebra with an example. L1 6M

**OR**

- 4 a Develop the working of union, intersection and except operations. L2 6M  
b Create a nested query to find the names of sailors who have reserved both a red and Green boat. L2 6M

**UNIT-III**

- 5 a Consider the relation scheme  $R = \{E, F, G, H, I, J, K, L, M, N\}$  and the set of functional dependencies  $\{\{E, F\} \rightarrow \{G\}, \{F\} \rightarrow \{I, J\}, \{E, H\} \rightarrow \{K, L\}, K \rightarrow \{M\}, L \rightarrow \{N\}\}$  on R. What is the key for R? L2 6M  
b Illustrate redundancy and the problems that it can cause. L1 6M

**OR**

- 6 a Compare Trivial and Non – Trivial Functional Dependencies with example L1 6M  
b Outline the terminologies: Partial Dependency, Transitive Dependency, Determinant, MVD, Join Dependency. L2 6M

**UNIT-IV**

- 7 a Illustrate Concurrent execution of transaction with examples. L2 6M  
b Analyze the Validation based protocols. L1 6M

**OR**

- 8 a Explain Timestamp-Based Concurrency control protocol and the modifications implemented in it. L2 6M  
b Define a Transaction. List the properties of transaction. L1 6M

**UNIT-V**

- 9 a Which level of RAID is best? Why? L1 6M  
b Distinguish between fixed length records and variable length records. L2 6M

**OR**

- 10 a What are the methods that are used in log based recovery? L2 6M  
b Discuss how do you recover from failure. L2 6M

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