

SIDDHARTH GROUP OF INSTITUTIONS ::PUTTUR Siddharth Nagar, Narayanavanam Road – 517583

OUESTION BANK (DESCRIPTIVE)

Subject with Code : Database Management System (19CS0506)	Course & Branch : B.Tech – CSE
Year & Sem : II-B.Tech & I-Sem	& CSIT

<u>UNIT – I</u>

INTRODUCTION TO DATABASE SYATEM AND DATA BASE DESIGN

1	(a)	Define Database? Discuss about applications of Database Systems?	[L1][CO1]	6M
	(b)	List out the purpose of Database Systems?	[L1][CO1]	6M
2	(a)	Briefly explain about Views of data	[L2][CO1]	6M
	(b)	Explain about various data models.	[L2][CO1]	6M
3	(a)	Draw the Architecture of Database?	[L4][CO1]	6M
	(b)	Discuss about Database users and Administrators?	[L2][CO1]	6M
4		Explain about Database languages with examples?	[L2][CO1]	12M
5	(a)	Define i) Database ii) DBMS iii) List the databaseApplications	[L1][CO1]	6M
	(b)	Enumerate the Data Abstraction and discuss levels of Abstraction?	[L1][CO1]	6M
6	(a)	Explain about ER model and Component of ER Diagram?	[L2][CO1]	12M
7	(a)	Write about logical database design (ER to Relational) with suitable examples?	[L3][CO2]	6M
	(b)	Give a examples of Attribute and List various types of attributes	[L2][CO1]	4 M
	(c)	Define Relationship set?	[L1][CO1]	2 M
8		Differentiate betweenRelationship and Relationship set?	[L2][CO1]	12M
9		Construct ER Diagram for University(i.eBanking system,Hospital management system,Railway Reservation system,Online Shopping) Implement the DDL Commands – Table Creation, Altering the table structures	[L3][CO2]	12M
10	(a)	truncating a table and dropping a table.	[L2][CO1]	6M
	(b)	Implement the DML Commands – Insert, Select Commands, update& delete Commands.	[L2][CO1]	6M



<u>UNIT – II</u> <u>RELATIONAL ALGEBRA AND CALCULUS, FORM OF BASIC SOL OUERY</u>

1	(a)	Define relational database query?	[L1][CO2] 6M
	(b)	Illustrate GROUP by and HAVING clauses with examples?	[L3][CO2] 6 M
2	(a)	Illustrate different operations in Relational algebra with an example?	[L2][CO2] 6M
	(b)	Discuss about Complex integrity constraints in SQL?	[L2][CO2] 6M
3		Classify the Relational calculus in detail?	[L2][CO2] 12M
4	(a)	Define NULL VALUE? Describe the effect of null values in database?	[L1][CO2] 6M
	(b)	Describe different types of aggregate operators with examples in SQL?	[L2][CO2] 6M
5	(a)	Illustrate project, join, select and product set operators with examples.	[L2][CO2] 6M
	(b)	Describe the SET operators with example.	[L1][CO2] 6M
6	(a)	Explain the working of union, intersection and except operations?	[L2][CO2] 6M
	(b)	Give a examples of clauses SELECT with an example.	[L2][CO2] 6M
7	(a)	Distinguish between two set theoretic operations of relational algebra with an example.	[L2][CO2] 6M
	(b)	To establish the WHERE, ANY, AS and ALL sub queries with example.	[L3][CO2] 6M
8	(a)	Discuss the candidate key, primary key, super key, composite key and alternate key.	[L2][CO2] 6M
		Explain the following terms:	
	(b)	Data Redundancy and consistency	
		Referential Integrity	
		Data atomicity	[L2][CO2] 6M
		Domain	
		constraints	
9		Data models Define Join? Explain different types of joins?	[L2][CO2] 12M
10	(a)	Define a nested query?	[L1][CO2] 2M
	(b)	Write a nested query to find the names of sailors who have reserved both a red and Green boat?	[L3][CO2] 5M
	(c)	Write a nested query to find the names of sailors who have reserved all boats?	[L3][CO2] 5 M



<u>UNIT – III</u>

INTRODUCTION TO SCHEMA REFINEMENT, PROPERTIES OF DECOMPOSITIONS:

1		What is Normalization? Explain in detail 1NF, 2NF, 3NF, BCNF with example.	[L1][CO3]	12M
2		Explain in detail Lossless join decomposition and dependency preserving decomposition with suitable example.	[L3][CO3]	12M
3	(a)	Differentiate BCNF with 3 rd normal form.	[L4][CO3]	6M
	(b)	Explain about demoralization.	[L2][CO3]	6M
4	(a)	Explain the following with suitable example: (i) Non- Loss decomposition. (ii) Prime Attributes.	[L3][CO3]	6M
	(b)	Illustrate redundancy and the problems that it can cause	[L2][CO3]	6M
5	(a)	Explain the following with suitable example. (i) Full functional dependency. (ii) Partial dependency.	[L2][CO3]	6M
	(b)	What do you mean by Normalization? Explain BCNF, 3NFand 2NFwith a suitable example.	[L3][CO3]	6M
6	(a)	What is Normalization? Explain the process of Normalization with suitable examples.	[L3][CO3]	6M
	(b)	Define functional and Trivial functional dependencies.	[L1][CO3]	12M
7		Define decomposition and how does it address redundancy? Discuss the problems that may be caused by the use of decompositions?	[L2][CO3]	12M
8		Explain about inference rules for functional dependencies and also explain about second normal form.	[L2][CO3]	6M
9	(a)	Define functional dependencies. How are primary keys related to FD's?	[L1][CO3]	6M
	(b)	What is redundancy? What are the problems caused by the redundancy?	[L1][CO3]	12M
10		Explain about following normal forms	[L3][CO3]	12M
	(a)	Second Normal Form.		
	(b)	Third Normal Form.		
	(c)	Boyce-Codd Normal Form.		

<u>UNIT – IV</u>

TRANSACTION AND CONCURRENCY

1	(a)	Define a Transaction? List the properties of transaction	[L1][CO4]	6M
	(b)	Write briefly about serializability with example.	[L3][CO4]	6M
2	(a)	Discuss How do you implement Atomicity and Durability	[L2][CO4]	6M
	(b)	What is a Transaction? Explain the properties of the transaction. Explain the States of the transaction with a neat sketch.	[L3][CO4]	6M
3	(a)	Discuss different phases (states) of transaction?	[L2][CO4]	6M
	(b)	Define Schedule? What is a serial schedule?	[L1][CO4]	6M
4	(a)	Demonstrate Conflict Serializability?	[L3][CO4]	6M
	(b)	illustrate Concurrent execution of transaction with examples	[L3][CO4]	6M
5	(a)	What are the states of transaction?	[L1][CO4]	6M
	(b)	What are the two statements regarding transaction?	[L1][CO4]	6M
6		Discuss various concurrency control protocols.	[L2][CO4]	12M
7		Identify the Validation based protocols.	[L2][CO4]	12M
8		Explain ACID properties and illustrate them through examples?	[L3][CO4]	12M
9		Explain Timestamp-Based Concurrency control protocol and the modifications implemented in it.	[L3][CO4] [12M
10		Determine the deadlock and 2-phase locking to ensure serialziability in concurrency control with locking methods.	[L3][CO4] [12M

<u>UNIT – V</u>

RECOVERABILITY, PHYSICAL STORAGE AND DATABASE CONCEPTS

1	(a)	Discuss how do you recover from failure?	[L2][CO5]	6M
	(b)	Describe about the deadlock prevention schemes.	[L2][CO5]	6M
2	(a)	Write short note on Buffer management for management of data.	[L3][CO5]	6M
	(b)	Explain in detail about ISAM	[L3][CO5]	6M
3	(a)	Illustrate classification of storage structure	[L2][CO5]	6M
	(b)	Explain concurrency control with lock based protocols	[L2][CO5]	6M
4	(a)	Explain different types of locks.	[L2][CO5]	6M
	(b)	Describe Times tamp based locking protocols?	[L2][CO5]	6M
5	(a)	What are the storage types?	[L1][CO5]	3M
	(b)	Define blocks?	[L1][CO5]	3 M
	(c)	What is meant by Physical blocks?	[L1][CO5]	3 M
	(d)	What is meant by buffer blocks?	[L1][CO5]	3 M
6	(a)	What are the types of storage devices?	[L1][CO5]	6M
	(b)	Explain Buffer Management in concurrency control system	[L2][CO5]	6M
7		Write about the various levels of RAID with neat diagrams	[L3][CO5]	12M
8	(a)	What are the factors to be taken into account when choosing a RAID level?	[L1][CO5]	6M
	(b)	Distinguish between fixed length records and variable length records.	[L2][CO5]	6M
9	(a)	Explain how recovery is done using undo logging and redo logging.	[L3][CO5]	6M
	(b)	Which level of RAID is best? Why?	[L1][CO5]	6M
10	(a)	Explain about failure with loss of non-volatile storage.	[L2][CO5]	6M
	(b)	What are the methods that are used in log based recovery?	[L1][CO5]	6M

Preparedby: 1. Mr A SURESH Associate Professor/CSE 2.MrP. SANTHOSH KUMAR Associate Professor/CSE 3. Mr. B. Ashok AssistantProfessor/CSE