NARSIMHA REDDY ENGINEERING COLLEGE
UGC AUTONOMOUS INSTITUTION
Maisammaguda (V), Kompally - 500100, Secunderabad, Telangana State, India

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DATABASE MANAGEMENT SYSTEM (23CY502)

8.Unit Wise Question Bank

UNIT I

S. No	Question	BT	CO	PO
	PART-A(Short Answer Questions)			
1	Define the terms data and information?	L1	CO1	PO1
2	Define (i) Database (ii) DBMS	L1	CO1	PO5
3	List the advantages and applications of DBMS?	L1	CO1	PO1
4	What are the disadvantages of file processing system?	L1	CO1	PO1
5	Define instances and schemas of database?	L1	CO1	PO2
6	What is data model? List the types of data models?	L1	CO1	PO1
7	Discuss about Data Definition language?	L2	CO1	PO5
8	Discuss about Data Manipulation language?	L2	CO1	PO5
9	What is Data Abstraction? Give the levels of data abstraction?	L2	CO1	PO2
10	Who is DBA? What are the responsibilities of DBA?	L2	CO1	PO2
	PART-B(Long Answer Questions)			
11	Compare and Contrast file Systems with database system?	L2	CO1	PO2
12	Define Data Abstraction and discuss levels of Abstraction?	L2	CO1	PO1
13	Discuss about different types of Data models?	L2	CO1	PO2
14	Describe the architecture of DBMS?	L1,L2	CO1	PO1
15	Discuss additional features of the ER-Models?	L2	CO1	PO1
16	Discuss about the Conceptual Design with the ER-Model?	L3	CO1	PO2
17	What is E-R model? Develop an E-R diagram for any Banking Enterprise System.	L3	CO1	PO3
18	What is data model? What are the different types of data models? Explain E-R model and relation model briefly?	L4	CO1	PO2
19	How to represent the Strong Entity set and Weak Entity set in ER-Model? Explain with an Example?	L3	CO1	PO2

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UNIT–II

S. No		Questions	BT	CO	PO
		Part –A(Short Answer Questions)			
1		Define relational database query?	L4	CO2	PO1
2		State about SELECT operation in Relational algebra?	L3	CO2	PO1
3		State about PROJECT operation in Relational algebra?	L3	CO2	PO1
4		Discuss the use of rename operation?	L4	CO2	PO1
5		Define Null Values.	L1	CO2	PO5
6		What is domain integrity? Give example.	L1	CO2	PO2
7		What are the Different Types of constraints?	L3	CO2	PO1
8		Explain primary key and foreign key constraints?	L4	CO2	PO1
9		What is the difference between primary key and unique key?	L1	CO2	PO4
10		Explain super key	L2	CO2	PO2
		Part– B(Long Answer Questions)			
11	a)	Explain Tuple relational calculus?	L3	CO2	PO5
	b)	How to destroy and alter tables in a DBMS?	L3	CO2	PO3
12	a)	Discuss in detail about the properties of relation algebra?	L3	CO2	PO1
	b)	How we can convert relationship sets with key constraints into tables? Explain?	L4	CO2	PO3
13	a)	Discuss the importance of entity integrity and referential integrity constraints?	L3	CO2	PO2
	b)	What is the usage of 'group by' and 'having' clauses in SQL?	L1	CO2	PO1
14	a)	With suitable Examples Explain Selection, Union, Rename & Cartesian (Cross) Product operations in relational algebra?	L2	CO2	PO2
	b)	Explain about domain relational calculus with example?	L4	CO2	PO5
15	a)	Explain the fundamental operations in relational algebra with examples?	L1	CO2	PO2
	b)	With a suitable Example Explain Intersection, Join, Division and Assignment operations in relational algebra?	L3	CO2	PO1

UNIT–III

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S. No		Questions	BT	CO	PO
		Part –A(Short Answer Questions)			
1		Define redundancy?	L1	CO3	PO5
2		Discuss normalization?	L3	CO3	PO1
3		List the aggregate functions supported by SQL?	L2	CO3	PO5
4		List the table modification commands in SQL?	L2	CO3	PO5
5		List the set operations of SQL?	L2	CO3	PO1
6		What is the use of group by clause?	L1	CO3	PO2
7		List out the Problems related to decompositions?	L2	CO3	PO1
8		Explain about multi-valued dependencies?	L2	CO3	PO4
9		Define First Normal Form?	L1	CO3	PO3
10		Explain about Loss less-join dependency?	L2	CO3	PO1
		Part– B(Long Answer Questions)			
11	a)	Elaborate Normalization? Explain 1NF, 2NF, 3NF, 4NF and 5NF with Examples?	L2	CO3	PO1
	b)	What is functional dependency? Explain its types in detail?	L2	CO2	PO5
12	a)	Explain insertion, deletion, and modification anomalies?	L2	CO3	PO2
	b)	What is trigger? Explain how to implement triggers in SQL?	L2	CO3	PO1
13	a)	What are the conditions to be followed to convert a relation in 3NF to BCNF?	L1	CO3	PO1
	b)	Given a relation R(X,Y,Z) and Functional Dependency set FD= {XY→Z and Z→ }, determine whether the given R is in BCNF? If not convert it into BCNF.	L4	CO3	PO5
14	a)	Determine whether the decomposition of R into R1 (A,B), R2 (B,C) and R3 (B,D) is loss less or loss.	L4	CO3	PO2
	b)	Explain the following operators in SQL With Examples: i) INTERSECT ii) EXCEPT iii) UNION iv) SOME	L2	CO3	PO1
15	a)	When is a decomposition said to be dependency preserving? Why this property Useful? Explain?	L3	CO3	PO1
	b)	What aggregate operators does SQL support? Explain with examples?	L2	CO3	PO1

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UNIT–IV

S.No		Questions	BT	CO	PO
		Part –A(Short Answer Questions)			
1		Define a Transaction? List the properties of transaction	L2	CO4	PO1
2		Discuss different phases of transaction?	L1	CO4	PO1
3		Discuss recoverable schedules?	L2	CO4	PO2
4		Discuss cascade less schedules?	L2	CO4	PO3
5		Define Two Phase Commit protocol?	L2	CO4	PO1
6		Demonstrate the implementation of Isolation	L3	CO4	PO2
7		Discuss the Procedure to test Serializability?	L2	CO4	PO2
8		Explain about different types of locks?	L2	CO4	PO1
9		Explain about transition states?	L2	CO4	PO1
10		Explain about acid properties?	L2	CO4	PO1
		Part– B(Long Answer Questions)			
11	a)	Write about the transaction management with SQL using commit, roll back and save point.	L2	CO4	PO1
	b)	Write and explain the time stamped and optimistic concurrency control?	L3	CO4	PO1
12	a)	What is Recoverability ? Discuss types of recoverable schedules?	L2	CO4	PO1
	b)	Explain multiple granularities of locking protocol with an example?	L2	CO4	PO4
13	a)	Explain the Time Stamp-Based Concurrency Control protocol? How is it is used to ensure serializability?	L2	CO4	PO2
	b)	Explain the check point log-based recovery scheme for Recovering the database?	L2	CO4	PO3
14	a)	What is ARIES (Algorithm for Recovery and Isolation Exploiting Semantics) in crash recovery? Describe the steps in crash recovery in ARIES?	L3	CO4	PO5
	b)	What are 2 phase locking protocol? How does it guarantee serializability?	L3	CO4	PO1
15	a)	How to test serializability of a schedule? Explain with an Example?	L3	CO4	PO6
	b)	Explain the following: (i)Serializability? (ii)Validation Protocol? (iii)Transaction Properties?	L2	CO4	PO2

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UNIT–V

S. No		Questions	BT	CO	PO
		Part –A(Short Answer Questions)			
1		Discuss about data on External storage?	L3	CO5	PO1
2		Explain Clustered Indexes?	L2	CO5	PO2
3		Discuss the Primary and Secondary indexes?	L3	CO5	PO2
4		Define Tree Indexing?	L1	CO5	PO1
5		Explain Hash based Indexing?	L2	CO5	PO1
6		Discuss the intuition for Tree Indexes?	L2	CO5	PO2
7		Define Indexed Sequential Access Method?	L1	CO5	PO5
8		Discuss the Cost model of Heap files?	L3	CO5	PO6
9		Explain about B+ tree index file?	L2	CO5	PO2
10		Explain about static hashing?	L2	CO5	PO2
		Part– B(Long Answer Questions)			
11	a)	Describe the Insertion, Deletion and Search Operations in B+ Trees?	L3	CO5	PO1
	b)	By considering an example, show how to reduce access time with primary index.	L5	CO5	PO1
12	a)	Explain Deletion and Insertion operations in ISAM with example and write the Pros and Cons of ISAM (Indexed Sequential Access Method)?	L2	CO5	PO2
	b)	Compare heap file organization with hash file organization?	L3	CO5	PO1
13	a)	Is disk cylinder a logical concept? Justify your answer?	L4	CO5	PO1
	b)	State and explain various file organization methods? Give Suitable example to each of them?	L3	CO5	PO2
14	a)	Give a brief note on Indexed Sequential Access Methods?	L3	CO5	PO5
	b)	Demonstrate bulk loading of B+ tree of order 3 with the following data (key*), 56*, 32*, 18*, 72*, 45*, 16*, 98*, 83*, 81*, 27*, 39*, 51*, 66*, 44*, 33*, 22*.	L4	CO5	PO1
15	a)	Is B+ Tree a multi-level indexing? How does it differ from B-Tree?	L3	CO5	PO1
	b)	What is mean by extendable hashing? Explain briefly with example.	L2	CO5	PO1

***Blooms Taxonomy Level (BT)** (L1–Remembering; L2–Understanding; L3–Applying;
L4–Analyzing; L5–Evaluating; L6–Creating **Course Outcomes (CO),Program Outcomes(PO))**

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