Satyug Darshan Institute of Technology,Faridabad		
Programme: Btech		**Year:3rd Semester:5th**
Subject Name : Database Management System		**Subject Code:PCC-CS-501**
Prepared By: Ms. Shikha Arora		**AY-2025-2026**
Unit -1		
Short Questions		
S. No.	**Questions**	**Bloom Taxonomy**
1	Define database and DBMS.	K1
2	Differentiate between data and information.	K2
3	List the advantages of dbms approiach over file based system approach	K1
4	Explain the concept of DDL,DML And DCL	K1
5	Define data dictionary and metadata.	K1
6	Discuss the difference between schema and instance.	K4
7	Explain the different types of attributes used in Er diagram	K2
8	Define subschema.	K1
9	Define entity set .	K1
10	Discuss the following:Primary key,Candidate key,alternate key, Foreign key.	K2
Long Questions		
1	Differentiate between strong and weak entity sets. Explain total and partial participation with suitable examples.	K2
2	Discuss the components of DBMS with a neat diagram.	K2
3	Differentiate between specialization and generalization with suitable examples.	K4
4	Discuss the different types of database users.	K2
5	Discuss the three-schema architecture of DBMS with suitable diagram.	K2
6	Discuss the need data independence and describe its two types.	K2
7	Compare and contrast hierarchical, network, and relational data models with suitable diagrams.	K4
8	Design an ER diagram for a real-world application and convert it into relational tables using ER-to-relational mapping rules.	K4
9	Explain integrity constraints: entity integrity, referential integrity, domain constraint, and key constraint with examples.	K2
Unit -2 & Unit 3		
Short Questions		
S. No.	**Questions**	**Bloom Taxonomy**
1	Discuss why armstrong's inference rules are called sound and complete.	K2
2	Define functional dependency.	K1
3	Discuss why normalisation is required	K2
4	Define anomalies in relational database.	K1
5	State the properties of 2NF	K1
6	Discuss the use of order by clause with suitable example.	K2
7	Explain query optimization in dbms.	K2
8	Differentiate between relational algebra and relational calculus.	K4
9	Define hashing	K1
10	Discuss how DRC differes from TRC with suitable example.	K2
11	Differentiate between open-source and commercial DBMS.	K4
12	Write an algorithm to find minimal cover for as set of FD's.	K2

	Long Questions	
1	Explain the steps that are involved in processing a query with suitable diagram.	K2
2	Discuss how data is stored and processed in B trees.	K2
3	Explain how a query can be performed using cost based- optimization technique.	K2
4	Explain how a query can be performed using heuristic optimization technique.	K2
5	Explain the need for normalization and discuss different normal forms (1NF to 5NF) with examples.	K2
6	Explain various operations of relational algebra with suitable examples.	K2
7	Discuss query equivalence rules with examples.	K2
8	Explain the steps involved in query processing with a suitable diagram.	K2
9	Explain direct file organization (hashing) and its advantages and limitations.	K2
10	Consider a relation R(A, B, C, D, E) with the following set of functional dependencies A →B,BC → D, D → E, E → A. Find all the candidate keys of relation R using the closure method.	K2
11	Consider the following schema: Student(name, roll no(PK), class,department) Course (course-name, course-number(PK) ,credit-hrs,dept) Section(sec-id(PK), course-no,semester,year,instructor) Grade_report (rollnum ,section-id (PK),grade) Specify the following queries in relational algebra: i) Retrieve the names of all courses taught by 'prof XYZ' IN 1998 and 1999. ii) Retrive the names and departments of all grade 'A' student. iii) Retrieve the names and departments of all students who have either grade 'A' or are enrolled in a course with a number 101..	K2
	Unit -4	
	Short Questions	
S. No.	**Questions**	**Bloom Taxonomy**
1	State ACID Property.	K1
2	Define concurrency . What are the advantages and disadvantages of concurrenc	K1
3	Discuss the difference between Wait -Die and Wound Wait schemes for deadlo	K2
4	Discuss how checkpoints are useful in database recovery	K2
5	Explain the term Serializability.	K2
	Long Questions	
1	Describe are the ways to assign timestamps to transactions? Explain Time-Stamp based concurrency Control Protocol for the Read/Write operations issued by transaction	K2
2	Define database recovery, Explain the concept of Immediate Update Recovery technique And Deffered Recovery technique.	K2
3	Explain the concept of shadow paging .	K2
4	Define Conflict Serializability. Using Precedence Graph check whether the given schedule S(with 3 transactions T1,T2,T3)is conflict serializable or not. S:R1(A),R2(B),R1(B),R2(B),R3(B),W1(A),W2(B).	K2
5	Explain the 2 PL protocol for concurrency control.Why strict 2PL is preferred for ensuring recoverability in DBMS?	K2

6	Discuss are the different problem associated with concurrent execution.(Lost update, Dirty read ,Unrepeatable Read problem)	K2
Unit -5 & Unit 6		
Short Questions		
S. No.	**Questions**	**Bloom Taxonomy**
1	Define database security	K1
2	List any 2 difference between datawarehouse and data mining	K1
3	Differentiate between Authentication and Authorization.	K4
4	How Id's is different from Firewall.	K4
5	Discuss SQL Injection Attack	K2
Long Questions		
1	Differentiate between MAC,DAC,and RBAC access control mechnaisms along	K4
2	Explain the concept of Intrusion Detection System (IDS). Discuss its types and working	K2
3	Discuss the various steps of KDD process . How data mining differ from KDD	K2
4	Discuss the architecture of distributed database.Explain the different data storage mechanism in Distributed Databases.	K2
5	Discuss the following a) Object oriented and object relational databases, B)Log	K2
6	Differentiate between distributed databaases and parallel databases.	K4