5	Process queries to extract data from a database

Q.No	Part A (2x10=20 marks) (Answer all the questions)	CO
1	What is relational model?	CO
2	How to represent the many-one relationships of a weak entity set in an entity-relationship diagram?	CO
3	Analyze about relational algebra.	CO
4	Write a SQL Statement to find the loan and loan numbers of all customers who have a loan at XYZ branch.	CO
5	Discuss the Armstrong axioms for Functional Dependencies.	CO
6	What is lossy decomposition? Why is it not preferred in normalization?	CO
7	Define a transaction in the context of databases.	CO
8	Describe the concept of shared and exclusive locks in locking protocols.	CO
9	Compare dense and sparse index.	CO
10	State the importance of magnetic disks.	CO

Q.No	Part B - (5 x 16 = 80 marks) (Answer all the questions)	CO
11 A	How E-R Model is used to represent a relation? Explain the concept of E- R Model with illustrations.	CO
	OR	

11 B	Explain the architecture of DBMS with neat sketch. Discuss its subsystem with illustrations.	CO1
12 A	What is non-procedural query language? Describe relational calculus and its types with example.	CO2
	OR	
12 B	Define and explain the concept of subqueries in SQL. How do subqueries enhance the capabilities of SQL queries? Provide examples to illustrate their use in retrieving and manipulating data.	CO2
13 A	List out the features achieving in normalization. Explain the concept of 1NF, 2NF and 3NF with suitable illustrations	CO3
	OR	
13 B	Briefly discuss about the functional dependency concepts with illustrations.	CO3
14 A	Explain how concurrency enables systems to utilize resources efficiently, improve responsiveness, and handle multiple tasks simultaneously.	CO4
	OR	
14 B	Discuss the concept of a transaction in the context of databases. Explain the ACID properties and how they ensure transactional reliability.	CO4
15 A	Explain the stages involved in query processing, including parsing, optimization, execution, and result retrieval. Compute the cost estimation for selection operation	CO
	OR	
15 B	Mention the storage hierarchy. Explain in detail about the primary, secondary and tertiary storage.	CO