

Name: Enrolment No:	
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UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, Dec 2025

Program: BBA-ABD

Semester: III

Subject/Course: DATAMANAGEMENT

Max. Marks: 100

Course Code: DSBA2010

Duration: 3 Hour

SECTION A
10Qx2M=20Marks

S. No.		Marks	CO
	Answers the following questions: -		CO1
1.	Which component manages the database files? a) Query Processor b) Storage Manager c) DCL Processor d) Transaction Manager		CO1
2.	Which of the following is NOT a type of attribute? a) Simple b) Composite c) Relational d) Multivalued		CO1
3.	SQL command to modify schema of table: a) MODIFY b) CHANGE c) ALTER d) UPDATE		CO1
4.	3NF removes which dependency? a) Partial b) Transitive c) Multivalued d) Repeating groups		CO1
5.	A set of attributes that uniquely identifies tuples is: a) Domain b) Entity c) Key d) File		CO1
6.	The "I" in ACID stands for: a) Isolation b) Integrity		CO1

	c) Information d) Inconsistency		
7.	Which join returns only matching rows? a) Inner join b) Full outer join c) Cartesian join d) Right join		CO1
8.	BCNF is higher normal form than: a) 1NF b) 2NF c) 3NF d) All of these		CO1
9.	Lost update problem is resolved using: a) Indexing b) Query optimization c) Concurrency control d) DDL		CO1
10.	SQL stands for: a) Structured Query Language b) Sorted Question Language c) Structured Question Language d) Sorted Query Language		CO1

SECTION B
4Qx5M= 20 Marks

	Answers the following questions: -		
11.	Explain the difference between Primary key & Foreign key with examples.		CO2
12.	Define Transaction. Explain ACID properties with respect to Fund Transfer as an example in a Bank		CO2
13.	Describe the concepts of Derived Attribute, Composite Attribute, and Multivalued Attribute, and provide relevant examples for each.		CO2
14.	Explain Transaction State Diagram with neat sketch.		CO2

SECTION-C
3Qx10M=30 Marks

	Answers the following questions: -		
15.	Consider the following table: <i>EMPLOYEE(EmpID, EmpName, Department, City, Salary)</i> Write SQL queries for the following (only write the query): i. Using a logical operator (AND) , list EmpName, Department and City of employees who work in the 'Sales' department and belong to 'Dehradun'.		CO2

	ii. Using the IN special filter, list all employees whose City is 'Dehradun' or 'Delhi'. iii. Using the BETWEEN special filter, display EmpName and Salary of employees whose Salary is between 30,000 and 50,000.		
16.	Define Serializability Testing and examine the following schedules to determine if they satisfy Conflict Serializability: - i. $R1(X), W2(X), W1(X), W3(X)$ ii. $R1(X), R3(X), W3(X), W1(X), W1(X), R2(X)$		CO3
17.	What do you understand by Normalization? Illustrate all the normal forms till BCNF with suitable examples. Further, discuss why BCNF provides a stronger design than 3NF and justify your explanation with a suitable example from contemporary programming or database practice. OR Consider the following two tables: <i>EMPLOYEE(EmpID, EmpName, DeptID, City)</i> <i>DEPARTMENT(DeptID, DeptName, Location)</i> Write SQL queries for the following (only write the query): i. Using INNER JOIN, display EmpName, City and DeptName of all employees. ii. Using INNER JOIN with a WHERE condition, display EmpName and DeptName of employees whose DeptName is 'Sales'.		CO3
SECTION-D 2Qx15M= 30 Marks			
	Answers the following questions: -		CO4
18.	Given the relation R(W, X, Y, Z) with the functional dependencies: F = { W → XY, X → Z, Y → X } (a) Identify the candidate keys of R. (b) Determine the highest normal form that R satisfies. (c) Decompose R into BCNF if required.		CO4
19.	Define the concept of Concurrency Control in Database Management Systems. Provide a detailed explanation of Locking Techniques used for concurrency control, highlighting their types, mechanisms, and role in preserving data integrity during simultaneous transaction execution. OR What is meant by a Schedule in DBMS? With the help of suitable examples, differentiate between Serial Schedules and Concurrent Schedules. Further, explain why Serializability is important in database systems and describe Conflict Serializability and View Serializability in detail.		CO4

