

Model Question Paper- II with effect from 2022

CBCS SCHEME

Fourth Semester B.E Degree Examination 2024-25

Database Management System (BCS403)

TIME: 03 Hours

Max.Marks:100

1. Note: Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**

2. M: Marks, L: Bloom's level, C: Course outcomes.

	Module - 1		M	L	C
Q.1	a	What is a Database? Explain the three schema architecture with neat diagram.	8	L2	CO1
	b	What are the advantages of using DBMS approach? Explain	8	L2	CO1
	c	Explain the following terms. 1. Data Dictionary 2. Weak Entity	4	L2	CO1
	OR				
Q.2	a	Explain the categories of Data Models.	8	L2	CO1
	b	Explain the component modules of DBMS & their interactions with diagram.	8	L2	CO1
	c	What are the responsibilities of DBA & database designers?	4	L2	CO1
	Module - 2				
Q.3	a	Explain the different types of update operations on relational database. How basic operation deals with constraint violation.	6	L2	CO2
	b	Explain Unary relational operations with examples.	6	L2	CO2
	c	What is an Integrity Constraint? Explain the importance of Referential Integrity Constraint.	8	L2	CO2
	OR				
Q.4	a	Explain the following relational algebra operation. JOIN, DIFFERENCE, SELECT, UNION	10	L3	CO2
	b	Discuss the E.R to Relational mapping algorithm with example for each step.	6	L3	CO2
	c	Explain the relational algebra operation for set theory with examples.	4	L2	CO2
	Module - 3				
Q.5	a	Illustrate insert, delete, update, alter & drop commands in SQL.	6	L4	CO3

Model Question Paper- II with effect from 2022

	b	Explain informal design guidelines for relational schema design.	4	L2	CO3
	c	What is Functional dependency? Explain the inference rules for functional dependency with proof.	10	L3	CO4
	OR				
Q.6	a	Consider two sets of functional dependency. $F=\{A \rightarrow C, AC \rightarrow D, E \rightarrow AD, E \rightarrow H\}$ $E= \{A \rightarrow CD, E \rightarrow AH\}$. Are they Equivalent?	10	L3	CO4
	b	Explain the types of update anomalies in SQL with an example.	10	L2	CO3
	Module - 4				
Q.7	a	Demonstrate transaction states & additional operations.	10	L3	CO4
	b	Demonstrate working of Assertion & Triggers in database? Explain with an example.	10	L2	CO3
	OR				
Q.8	a	Demonstrate the System Log in database transaction.	6	L2	CO4
	b	Discuss the ACID properties of database transaction.	4	L2	CO4
	c	Explain stored procedure language in SQL with an example.	10	L2	CO3
	Module - 5				
Q.9	a	Explain the Two phase locking protocol used for concurrency control.	8	L3	CO5
	b	Define Schedule? Illustrate with an example.	4	L2	CO5
	c	Why Concurrency control is needed? Demonstrate with an example.	8	L3	CO5
	OR				
Q.10	a	What is NOSQL? Explain the CAP theorem.	6	L2	CO5
	b	What are document based NOSQL systems? basic operations CRUD in MongoDB.	8	L2	CO5
	c	What is NOSQL Graph database? Explain Neo4j.	6	L2	CO5

Model Question Paper- I with effect from 2022

CBCS SCHEME

Fourth Semester B.E Degree Examination 2024-25

Database Management Systems (BCS403)

TIME: 03 Hours

Max.Marks:100

1. Note: Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**
2. M: Marks, L: Bloom's level, C: Course outcomes.

	Module - 1		M	L	C
Q.1	a	Explain the types of end users with examples.	8	L2	CO1
	b	What are the advantages of using DBMS? Explain.	8	L2	CO1
	c	Describe the characteristics of database.	4	L2	CO1
	OR				
Q.2	a	Explain three schema architecture. Why mappings b/w schema levels are required?	8	L2	CO1
	b	Explain the different types of attributes in ER model.	8	L2	CO1
	c	Explain the following. 1. Cardinality Ratio 2. Weak Entity	4	L2	CO1
	Module - 2				
Q.3	a	Explain the different Relational Model constraints.	6	L2	CO2
	b	Demonstrate the concepts of Generalization & Specialization with examples.	6	L2	CO2
	c	Explain Entity Integrity Constraint & Referential Integrity Constraints? Why each of these is important in a database.	8	L2	CO2
	OR				

Model Question Paper- I with effect from 2022

Q.4	a	Consider the Sailors-Boats-Reserves DB described s (sid, sname, rating, age) b (bid, bname, color) r (sid, bid, date) Write each of the following queries in SQL. 1. Find the colors of boats reserved by Alber. 2. Find all sailor ids of sailors who have a rating of at least 8 or reserved boat 103. 3. Find the names of sailors who have not reserved a boat whose name contains the string "storm". Order the names in ascending order. 4. Find the sailor ids of sailors with age over 20 who have not reserved a boat whose name includes the string "thunder".	10	L3	CO2
	b	Discuss the Equijoin & Natural Join with suitable example.	6	L3	CO2
	c	Explain the relational algebra operation for set theory with examples.	4	L2	CO2
Module - 3					
Q.5	a	Explain the Cursor & its properties in embedded SQL with an example.	6	L2	CO3
	b	What is a Normalization? Explain the 1NF, 2NF & 3NF with examples.	10	L2	CO4
	c	Explain informal design guidelines for relational schema design.	4	L2	CO3
OR					
Q.6	a	What is Functional Dependency? Write algorithm to find minimal cover for set of Functional Dependency. Construct the minimal cover m for set of functional dependency. E={ B→A, D→A, AB→D}	10	L2	CO4
	b	Explain the types of update anomalies in SQL with an example.	10	L4	CO3
Module - 4					
Q.7	a	Demonstrate the Database Transaction with transaction diagram.	10	L2	CO4
	b	Demonstrate working of Assertion & Triggers in SQL? Explain with an example.	10	L3	CO3
OR					
Q.8	a	Demonstrate the System Log in database transaction.	6	L2	CO4
	b	Demonstrate the ACID properties of database transaction.	4	L2	CO4
	c	Explain stored procedure language in SQL with an example.	10	L2	CO3

Model Question Paper- I with effect from 2022

	Module - 5				
Q.9	a	Demonstrate the Two phase locking protocol used for concurrency control.	8	L3	CO5
	b	Demonstrate the Concurrency control based on Timestamp ordering.	4	L2	CO5
	c.	Why Concurrency control is needed? Demonstrate with an example.	8	L3	CO5
	OR				
Q.10	a	What is NOSQL? Explain the CAP theorem.	6	L2	CO5
	b	What are document based NOSQL systems? Explain basic operations CRUD in MongoDB.	8	L2	CO5
	c	What is NOSQL Graph database? Explain Neo4j.	6	L2	CO5

--	--	--	--	--	--	--	--	--	--

Fourth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025

Database Management System

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1				M	L	C																																												
Q.1	a.	Define the following terms: (i) Database (ii) Schema (iii) Entity (iv) DDL (v) Degree of a relationship		05	L1	CO1																																												
	b.	Briefly explain characteristics of database approach.		05	L2	CO1																																												
	c.	List and explain advantages of using DBMS approach.		10	L2	CO1																																												
OR																																																		
Q.2	a.	Define the following terms: (i) Cardinality (ii) Weak entity (iii) Program data independence (iv) DML (v) Value sets		05	L1	CO1																																												
	b.	Describe three-schema architecture. Why do we need mappings between schema levels?		05	L2	CO1																																												
	c.	Explain different types of attributes in ER model with suitable example for each.		10	L2	CO1																																												
Module – 2																																																		
Q.3	a.	With suitable example, explain the entity integrity and referential integrity constraints. Why each is considered important?		05	L2	CO2																																												
	b.	Discuss equijoin and natural join with suitable example using relational algebra notation.		05	L2	CO2																																												
	c.	Given the relational tables: <table><tr><td colspan="4">Employee:</td><td colspan="2">Department:</td></tr><tr><td>EID</td><td>Name</td><td>DepID</td><td>Salary</td><td>DeptID</td><td>DeptName</td></tr><tr><td>1</td><td>Alice</td><td>10</td><td>5000</td><td>10</td><td>HR</td></tr><tr><td>2</td><td>Bob</td><td>20</td><td>6000</td><td>20</td><td>IT</td></tr><tr><td>3</td><td>Eve</td><td>20</td><td>6500</td><td>30</td><td>Sales</td></tr></table> <table><tr><td colspan="3">Project</td></tr><tr><td>PID</td><td>Project Name</td><td>DeptID</td></tr><tr><td>101</td><td>Project Alpha</td><td>10</td></tr><tr><td>102</td><td>Project Beta</td><td>20</td></tr><tr><td>103</td><td>Project Gamma</td><td>30</td></tr></table> Write relational algebra expression for the following: (i) Find the names and salaries of all employees in the 'IT' department. (ii) Find the ID's and names of employees who are in the 'IT' department and have a salary greater than 6000. (iii) Find the ID's and names of employees who are either in the 'HR' department or have a salary greater than 6000. (iv) Find the names of employees who are not in the 'IT' department (v) Find the names of employees along with their department names.	Employee:				Department:		EID	Name	DepID	Salary	DeptID	DeptName	1	Alice	10	5000	10	HR	2	Bob	20	6000	20	IT	3	Eve	20	6500	30	Sales	Project			PID	Project Name	DeptID	101	Project Alpha	10	102	Project Beta	20	103	Project Gamma	30		10	L3
Employee:				Department:																																														
EID	Name	DepID	Salary	DeptID	DeptName																																													
1	Alice	10	5000	10	HR																																													
2	Bob	20	6000	20	IT																																													
3	Eve	20	6500	30	Sales																																													
Project																																																		
PID	Project Name	DeptID																																																
101	Project Alpha	10																																																
102	Project Beta	20																																																
103	Project Gamma	30																																																

1 of 3

OR

Q.4	a.	Explain any two operations that change the state of relation in a database. Provide suitable examples.	05	L2	CO2																																												
	b.	Discuss the aggregation functions and grouping in relational algebra with suitable examples.	05	L2	CO2																																												
	c.	<div>Given the relational tables:</div> <table><tr><th colspan="2">Student:</th><th colspan="2">Project:</th></tr><tr><th>SID</th><th>Name</th><th>PID</th><th>Project Name</th></tr><tr><td>a</td><td>Alice</td><td>p</td><td>Alpha</td></tr><tr><td>b</td><td>Bob</td><td>q</td><td>Beta</td></tr><tr><td>c</td><td>Carol</td><td>r</td><td>Gamma</td></tr></table> <table><tr><th colspan="2">Language:</th><th colspan="2">Enrollment:</th></tr><tr><th>LID</th><th>Language Name</th><th>SID</th><th>PID</th></tr><tr><td>x</td><td>Python</td><td>a</td><td>p</td></tr><tr><td>y</td><td>Java</td><td>a</td><td>q</td></tr><tr><td>z</td><td>C++</td><td>b</td><td>q</td></tr><tr><td></td><td></td><td>c</td><td>r</td></tr></table> <div>Write relational algebra expression for the following:</div> <div>(i) Rename the student table to Learner and display it.</div> <div>(ii) Find the students (learners) who are not enrolled in any project.</div> <div>(iii) Find the students who are enrolled in all projects.</div> <div>(iv) Find the students who are not enrolled in any project.</div> <div>(v) Find the students who are enrolled in both the 'Alpha' and 'Beta' projects.</div>	Student:		Project:		SID	Name	PID	Project Name	a	Alice	p	Alpha	b	Bob	q	Beta	c	Carol	r	Gamma	Language:		Enrollment:		LID	Language Name	SID	PID	x	Python	a	p	y	Java	a	q	z	C++	b	q			c	r	10	L3	CO2
Student:		Project:																																															
SID	Name	PID	Project Name																																														
a	Alice	p	Alpha																																														
b	Bob	q	Beta																																														
c	Carol	r	Gamma																																														
Language:		Enrollment:																																															
LID	Language Name	SID	PID																																														
x	Python	a	p																																														
y	Java	a	q																																														
z	C++	b	q																																														
		c	r																																														

Module – 3

Q.5	a.	Explain Armstrong inference rules.	05	L2	CO4
	b.	What is the need for normalization? Explain 1NF, 2NF and 3NF with examples.	05	L2	CO4
	c.	What is functional dependency? Write an algorithm to find minimal cover for set of functional dependencies. Construct minimal cover M for set of functional dependencies which are: $E = \{B \rightarrow A, D \rightarrow A, AB \rightarrow D\}$	10	L3	CO4

OR

Q.6	a.	Explain the types of update anomalies in SQL with an example.	05	L2	CO4
	b.	Explain types of JDBC drivers.	05	L2	CO5
	c.	Consider the schema $R = ABCD$, subjected to FDs $F = \{A \rightarrow B, B \rightarrow C\}$, and the non-binary partition $D1 = \{ACD, AB, BC\}$. State whether D1 is a lossless decomposition? [give all steps in detail].	10	L3	CO4

Module – 4

Q.7	a.	Define transaction. Discuss ACID properties.	05	L2	CO5
	b.	With a neat diagram, explain transition diagram of a transaction.	05	L2	CO5
	c.	Demonstrate working of assertion and triggers in SQL with example.	10	L3	CO5

OR

Q.8	a.	Explain cursor and its properties in embedded SQL with suitable example.	05	L2	CO5
	b.	<p>Determine if the following schedule is serializable and explain your reasoning:</p> <p>i) $T1 : R(X)W(X) \quad T2 : R(X)W(X) \quad T1 : COMMIT \quad T2 : COMMIT$</p> <p>ii) $T1 : W(X)R(Y) \quad T2 : R(X)W(Y) \quad T1 : COMMIT \quad T2 : COMMIT$</p>	05	L2	CO5

	c.	Consider the tables below: Sailors (<u>sid</u> : integer, sname : string, rating : integer, age : real) Boats (<u>bid</u> : integer, bname : string, color : string); Reserves (<u>sid</u> : integer, <u>bid</u> : integer, day : date) Write SQL queries for the following: (i) Write create table statement for reserves. (ii) Find all information of sailors who have reserved boat number 101. (iii) Find the names of sailors who have reserved at least one boat. (iv) Find the names of sailors who have reserved a red boat. (v) Find the average age of sailors for each rating level.	10	L3	CO5
Module – 5					
Q.9	a.	Explain the CAP theorem.	05	L2	CO6
	b.	What is NOSQL graph database? Explain Neo4j.	05	L2	CO6
	c.	Why concurrency control and recovery are needed in DBMS? Demonstrate with suitable examples types of problems that may occur when two simple transactions run concurrently.	10	L3	CO5
OR					
Q.10	a.	Explain basic operations CRUD in MongoDB.	05	L2	CO6
	b.	Explain deadlock prevention protocols.	05	L2	CO5
	c.	Briefly discuss the two-phase locking techniques for concurrency control.	10	L3	CO5

* * * * *

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2024
Database Management Systems

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.

2. *M*: Marks, *L*: Bloom's level, *C*: Course outcomes.

Module – 1			M	L	C																																				
Q.1	a.	Define database. Elaborate component modules of DBMS and their interactions.	10	L2	CO1																																				
	b.	Describe the three-schema architecture. Why do we need mappings among schema levels?	06	L2	CO1																																				
	c.	Explain the difference between logical and physical data independence.	04	L2	CO1																																				
OR																																									
Q.2	a.	Draw an ER diagram for an COMPANY database with employee, department, project as strong entities and dependent as weak entity. Specify the constraints, relationships and ratios in the ER diagram.	10	L3	CO3																																				
	b.	Define the following terms with example for each using ER notations: Entity, attribute, composite attribute, multivalued attribute, participation role.	10	L3	CO3																																				
Module – 2																																									
Q.3	a.	Discuss the update operations and dealing with constraint violations with suitable examples.	08	L2	CO2																																				
	b.	Illustrate the relational algebra operators with examples for select and project operation.	06	L2	CO2																																				
	c.	Discuss the characteristics of relations that make them different from ordinary table and files.	06	L2	CO2																																				
OR																																									
Q.4	a.	Perform (i) Student U instructor (ii) Student ∩ Instructor (iii) Student – Instructor (iv) Instructor – Student on the following tables: <table><tr><th colspan="2">Student</th><th colspan="2">Instructor</th></tr><tr><td>Fname</td><td>Lname</td><td>Fname</td><td>Lname</td></tr><tr><td>Susan</td><td>Yao</td><td>John</td><td>Smith</td></tr><tr><td>Ramesh</td><td>Shah</td><td>Ricardo</td><td>Browne</td></tr><tr><td>Johnny</td><td>Kohler</td><td>Susan</td><td>Mao</td></tr><tr><td>Barbara</td><td>Jones</td><td>Francis</td><td>Johnson</td></tr><tr><td>Amy</td><td>Ford</td><td>Ramesh</td><td>Shah</td></tr><tr><td>Jimmy</td><td>Wang</td><td></td><td></td></tr><tr><td>Ernest</td><td>Gilbert</td><td></td><td></td></tr></table>	Student		Instructor		Fname	Lname	Fname	Lname	Susan	Yao	John	Smith	Ramesh	Shah	Ricardo	Browne	Johnny	Kohler	Susan	Mao	Barbara	Jones	Francis	Johnson	Amy	Ford	Ramesh	Shah	Jimmy	Wang			Ernest	Gilbert			04	L3	CO2
Student		Instructor																																							
Fname	Lname	Fname	Lname																																						
Susan	Yao	John	Smith																																						
Ramesh	Shah	Ricardo	Browne																																						
Johnny	Kohler	Susan	Mao																																						
Barbara	Jones	Francis	Johnson																																						
Amy	Ford	Ramesh	Shah																																						
Jimmy	Wang																																								
Ernest	Gilbert																																								
	b.	Consider the following relational database schema and write the queries in relational algebra expressions: EMP(<u>Eno</u> , Ename, Salary, Address, Phone, DNo) DEPT(<u>DNo</u> , Dname, DLoc, MgrEno) DEPENDENT(<u>Eno</u> , <u>Dep_Name</u> , Drelation, Dage) (i) List all the employees who reside in 'Belagavi'. (ii) List all the employees who earn salary between 30000 and 40000 (iii) List all the employees who work for the 'Sales' department (iv) List all the employees who have at least one daughter (v) List the department names along with the names of the managers	10	L3	CO2																																				

c.	Consider the two tables T_1 and T_2 shown below:	06	L3	CO2
----	--	----	----	-----

T_1		
P	Q	R
10	a	5
15	b	8
25	a	6

T_2		
A	B	C
10	b	6
25	c	3
10	b	5

Show the results of the following operations:

(i) $T_1 \bowtie_{T_1.P=T_2.A} T_2$

(ii) $T_1 \bowtie_{T_1.Q=T_2.B} T_2$

(iii) $T_1 \bowtie_{(T_1.P=T_2.A \text{ AND } T_1.R=T_2.C)} T_2$

Module – 3

Q.5	a.	Discuss the informal design guidelines for relation schema design.	08	L2	CO4
	b.	Define 1NF, 2NF, and 3NF with examples.	06	L2	CO4
	c.	Write the syntax for INSERT, UPDATE and DELETE statements in SQL and explain with suitable examples.	06	L2	CO3

OR

Q.6	a.	Discuss insertion, deletion and modification anomalies. Why are they considered bad? Illustrate with examples.	10	L2	CO3
	b.	Illustrate the following with suitable examples:	10	L2	CO3
		(i) Datatypes in SQL			
		(ii) Substring Pattern Matching in SQL.			

Module – 4

Q.7	a.	Consider the following relations: Student(<u>Snum</u> , Sname, Branch, level, age) Class(<u>Cname</u> , meet_at, room, fid) Enrolled(<u>Snum</u> , <u>Cname</u>) Faculty(<u>fid</u> , fname, deptid) Write the following queries in SQL. No duplicates should be printed in any of the answers.	10	L3	CO3
		(i) Find the names of all Juniors (level = JR) who are enrolled in a class taught by I. Teach.			
		(ii) Find the names of all classes that either meet in room R128 or have five or more students enrolled.			
		(iii) For all levels except JR, print the level and the average age of students for that level.			
		(iv) For each faculty member that has taught classes only in room R128, print the faculty member's name and the total number of classes she or he has taught.			
		(v) Find the names of students not enrolled in any class.			
	b.	What do you understand by correlated Nested Queries in SQL? Explain with suitable example.	04	L2	CO3
	c.	Discuss the ACID properties of a database transaction.	06	L2	CO4

OR

Q.8	a.	What are the views in SQL? Explain with examples.	04	L3	CO5
	b.	In SQL, write the usage of GROUP BY and HAVING clauses with suitable examples.	06	L2	CO3
	c.	Discuss the types of problems that may encounter with transactions that run concurrently.	10	L2	CO5

Module – 5

Q.9	a.	What is the two phase locking protocol? How does it Guarantee serializability.	06	L2	CO5
	b.	Describe the wait-die and wound-wait protocols for deadlock prevention.	08	L2	CO5
	c.	List and explain the four major categories of NOSQL system.	06	L2	CO3
OR					
Q.10	a.	What is Multiple Granularity locking? How is it implemented using intension locks? Explain.	10	L2	CO5
	b.	Discuss the following MongoDB CRUD operations with their formats: (i) Insert (ii) Delete (iii) Read	06	L2	CO4
	c.	Briefly discuss about Neo4j data model.	04	L2	CO4

--	--	--	--	--	--	--	--	--	--

**Fourth Semester B.E./B.Tech. Degree Supplementary Examination,
June/July 2024**

Database Management System

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1				M	L	C
Q.1	a.	What is DBMS? List the characteristics of database approach. Bring out major advantages of the database approach.	8	L2	CO1	
	b.	Explain data independence. Draw 3 schema architecture and discuss the mapping.	7	L2	CO1	
	c.	Define following : i) Database Administrator ii) Canned transaction iii) Weak entity iv) Meta data v) Database Instance.	5	L2	CO1	
OR						
Q.2	a.	Describe components modules of DBMS and its interaction with neat diagram.	8	L2	CO1	
	b.	Draw ER diagram of library database schema atleast 4 entities. Also specify primary keys, structural constraints and explain.	8	L3	CO2	
	c.	Briefly discuss different types of end users of Database.	4	L2	CO2	
Module – 2						
Q.3	a.	Briefly explain different types of update operation on relation database. Show an example of violation of referential and entity integrity in each of update operation.	10	L2	CO3	
	b.	Consider following schema : Suppliers (SID , SName , address) Parts (PID , PName , Colour) Catalog (Sid , PID , Price) Write relational algebra expression for following queries : i) Find the names of all red parts. ii) Find all prices for parts that were red or green. iii) Find the SID's of all suppliers who supply part that is red or green. iv) Find the SID's of all supplier who supply part that is red and green.	10	L3	CO2	
OR						
Q.4	a.	Describe the steps of ER – to – relational mapping with suitable examples and schema for each step.	10	L2	CO2	
	b.	Explain with example : i) Division operation ii) Full outer join iii) Aggregate function iv) Project operation v) Cartesian product.	10	L2	CO2	

Module – 3					
Q.5	a.	What is the need for normalization? Explain 2 nd normal form. Consider the relation EMP_PROJ = {SSn , Pnumber , Hours , Ename , Pname , Plocation}. Assume {SSn , Pnumber} as a primary key. The dependencies are SSn ; Pnumber → {Hours} SSn → {Ename} Pnumber → {Pname, Plocation} , Normalize above relation into 2NF.	10	L3	CO4
	b.	Illustrate the informal design guidelines for relation schemes with examples.	10	L2	CO4
OR					
Q.6	a.	Write syntax with example in SQL for the DDL and DML SQL statements.	10	L2	CO3
	b.	Consider the schema for college database. Student (USN , Sname , Address , Phone , Gender) SemSec (SSID , Sem , Sec) Class (USN , SSID) Subject (Subcode , Title , Sem , Credits) IAmarks (USN , Subcode , SSID , Test1 , Test2, Test3, Final IA) Write SQL Query. i) List all the students studying in 4 th sem 'C' section. ii) Compute total number of male students in each semester. iii) List Test1 marks of all students in all subjects.	10	L3	CO3
Module – 4					
Q.7	a.	How are triggers and assertion defined in SQL? Explain with example.	10	L2	CO4
	b.	Write the syntax and example of view in SQL. Explain efficient view implementation.	10	L2	CO4
OR					
Q.8	a.	List the problems that occur during concurrency control and also explain them with supporting transaction diagrams.	10	L2	CO5
	b.	Explain the various DBMS – Specific Buffer replacement policies.	10	L2	CO5
Module – 5					
Q.9	a.	Demonstrate with example deadlock in transaction. Discuss deadlock prevention algorithm.	10	L2	CO5
	b.	What are Binary locks? Explain with Lock and unlock operations with algorithm.	10	L2	CO5
OR					
Q.10	Write a short note on : i) Properties of NOSQL system ii) The CAP theorem iii) Document based NO – SQL system iv) NOSQL Graph database.		20	L2	CO4

* * * * *