

Code: 20IT3401

**II B.Tech - II Semester – Regular/Supplementary Examinations
MAY 2023**

**DATABASE MANAGEMENT SYSTEM
(INFORMATION TECHNOLOGY)**

Duration: 3 hours

Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.
2. All parts of Question must be answered in one place.

BL – Blooms Level

CO – Course Outcome

			BL	CO	Max. Marks
UNIT-I					
1	a)	Discuss about different types of Data models?	L2	CO1	7 M
	b)	Describe the characteristics of database approach and explain with suitable examples.	L2	CO1	7 M
OR					
2	a)	What do mean by data independence? Discuss about the types of data independence?	L2	CO1	7M
	b)	Explain the Two-Tier, Three-Tier Architecture for DBMS.	L2	CO1	7M
UNIT-II					
3	a)	What is Relational Database? Explain the following with examples, in connection to SQL: i)DDL ii)DML	L2	CO2	7M

	b)	<p>For the following schema write queries in relational algebra</p> <p>Sailor(<u>sid</u>, sname, age, rating)</p> <p>Boats(<u>bid</u>, bname, bcolor)</p> <p>Reserves(<u>sid</u>,<u>bid</u>,day)</p> <p>i) Find the boats reserved by sailor with id 567.</p> <p>ii) Find the names of the sailors who reserved 'red' boats.</p> <p>iii) Find the boats which have at least two reservations by different sailors.</p>	L3	CO2	7M
OR					
4	a)	<p>Create table student table by Assuming the attributes based on the following Queries given.</p> <p>Answer the following with proper SQL Queries:</p> <p>i) Create and Insert values into student table</p> <p>ii) Retrieve student details</p> <p>iii) Delete student details whose sec is s10</p> <p>iv) Update SPhno of any student</p> <p>v) Alter student table by adding smail</p> <p>vi) Retrieve students who got more than 8 CGPA</p>	L3	CO2	7M
	b)	Differentiate relation schema and relational instance?	L2	CO2	7M

UNIT-III					
5	a)	What are key constraints and participation constraints in ER-diagram? How to represent them?	L2	CO3	7M
	b)	Draw an E-R diagram with almost all components for a banking enterprise with entity set customer, branch, loan, payment, account, employee with other own assumption.	L4	CO5	7M
OR					
6	a)	Draw an E-R diagram for hospital with a set of patients and set of medical doctors?	L4	CO5	7M
	b)	Draw an ER diagram of Library management system. Identify entities, roles, weak entity set if any, IS A relationship if any?	L4	CO5	7M
UNIT-IV					
7	a)	Explain dependency preservation property of decomposition?	L2	CO4	7M
	b)	Distinguish between 3NF and BCNF?	L2	CO4	7M
OR					
8	a)	What is the purpose of Normalization? Why it is done? Explain 1NF, 2NF?	L2	CO4	7M
	b)	Consider a relation scheme $R = (A, B, C, D, E, H)$ on which the following functional dependencies hold: $\{A \rightarrow B, BC \rightarrow D, E \rightarrow C, D \rightarrow A\}$. Write the candidate keys of R? Discuss the concept of Primary and Super Key	L3	CO4	7M

UNIT-V

9	a)	What is transaction? Explain the ACID properties of a transaction?	L2	CO1	7M
	b)	Explain any one method of log based recovery?	L2	CO1	7M
OR					
10	a)	Explain Two Phase- Locking protocol. What benefit does strict two-phase locking protocol provides? Discuss its disadvantages.	L2	CO1	7M
	b)	<p>Consider the transactions T1, T2, and T3 and the schedules S1 and S2 given below.</p> <p>T1: r1(X);r1(Z);w1(X);w1(Z)</p> <p>T2: r2(Y);r2(Z);w2(Z)</p> <p>T3:r3(Y);r3(X);w3(Y)</p> <p>S1: r1(X);r3(Y);r3(X);r2(Y);r2(Z); r1(Y);w2(Z);r1(Z);w1(X);w1(Z)</p> <p>S2: r1(X); r3(Y); r2(Y); r3(X); r1(Z); r2(Z); w3(Y); w1(X); w2(Z); w1(Z)</p> <p>Analyze which one of the schedules is conflict serializable?</p>	L2	CO1	7M