

Roll Number: _____

Thapar Institute of Engineering and Technology, Patiala

Department of Electrical and Instrumentation Engineering

MID SEMESTER EXAMINATION

B. E. (EE, EE, EIC)	Course Code: ULC501/UCS312 Course Name: Database Management System
March 22, 2024	Friday, 3.00 – 05.00 pm
Time: 2 Hours, M. Marks: 25	Name of Faculty: Dr. Ravinder Kaur

Note: Attempt all 5 questions. Assume any missing data if required.

Sr. No.	Questions	Marks	CO	BL
Q.1 (a)	“While discussing about the dependencies in DBMS, it is often said that logical data independence is more difficult to achieve than physical data independence” Justify the statement.	(2)	CO1	L4
(b)	Consider an organization, DEF Corporation that relies on manual record-keeping and spreadsheets to manage customer information and interactions. They are considering implementing a modern system based on a database management system (DBMS) for better customer data management and analysis. List all the key issues that need to be well-thought-out while moving from traditional file-based systems to modern database management system? Justify your view in terms of consistency, data integrity & complexity.	(3)	CO1	L1, L2
Q.2 (a)	Identify the main components in a DBMS and briefly explain the functionality of every component.	(2)	CO1	L1, L2
(b)	Compare Hierarchical, Network and Relational model in tabular manner. Which model is best and why?	(3)	CO1	L4
Q.3 (a)	Give an example SQL statement to create a table with a primary key constraint, and explain how it ensures entity integrity.	(2)	CO5	L3
(b)	Outline the differences between following terms with example i. On Delete Set null and On Delete Set Cascade ii. Drop and Truncate	(3)	CO5	L2
Q.4	Consider the following schema given below and write the appropriate SQL queries emp (eno, ename, bdate, title, salary, dno) proj (pno, pname, budget, dno) dept (dno, dname, mgreno) workson (eno, pno, resp, hours) i. Write an SQL query that returns the employees (number and name only) who have a title of 'EE' or 'SA' and make more than \$35,000.	(5)	CO5	L3

	<p>ii. Write an SQL query that returns the employees (name only) in department 'D1' ordered by decreasing salary.</p> <p>iii. Write an SQL query that returns the employee name, department name, and employee title.</p> <p>iv. Write an SQL query that list name of employees which begins with the 'A' character.</p> <p>v. Write an SQL query that returns the project name, department name, and budget for all projects with a budget < \$50,000.</p>			
Q.5 (a)	<p>Consider an E-R diagram for a hospital with a set of patients and a set of medical doctors. Construct appropriate tables for the given E-R diagram.</p>	(2)	CO2	L4
(b)	<p>Find the minimum number of tables required to represent the given ER diagram in relational model. Also, explain how?</p>	(3)	CO2	L4

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Note: The Students can check their answer sheets on 1st April 2024 at CD 206A from 3:30-4:30pm