

HITEC University, Taxila
Department of Computer Sciences
BS Computer Sciences Program
5th Semester, Session Fall2022
Lab Final Examination, Fall 2024

Subject: CS304 Database Systems

Date: Monday, January 27, 2025

Max Marks: 40 marks

Max Time: 120 Minutes [9:00 to 11:00 AM]

Registration No.: _____

Name: _____

GENERAL INSTRUCTIONS:

- You are required to design, implement, and test the database according to the given scenarios.
 - Use MySQL/MS SQL Server as the database engine and PHP/Visual Studio for frontend implementation.
 - Save your work and submit all necessary SQL scripts, PHP/ASP.NET code, and screenshots of outputs.
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Question 01: SO5 P4

20 Marks

A university maintains a Student Course Enrollment system in a single table, leading to data redundancy. The table structure is:

StudentID	StudentName	CourseID	CourseName	Instructor	Department	CreditHours
555	Alice	CSE101	DBMS	Dr. John	CSE	3
666	Alice	CSE102	OOP	Dr. Smith	CSE	4

- 1.1. Identify the anomalies in this table.
- 1.2. Normalize it to 3rd Normal Form (3NF) by designing properly with primary and foreign keys.
- 1.3. Write SQL CREATE TABLE statements for the new design.
- 1.4. Make a front-end user interface to insert the valid record in the table.

Question 02:

20 Marks

A hospital database has the following tables:

Doctor table

DoctorID	Name	Specialty
D101	Dr. Smith	Cardiology
D102	Dr. John	Neurology

Patient table

PatientID	Name	Age	DoctorID
1	John	25	D101
2	Alice	30	D102

- 2.1. Extend these table columns to a minimum of 10, insert random records in these tables using single insert query.
- 2.2. Write SQL queries to fetch patient details along with their assigned doctor's name using:
 - a. INNER JOIN
 - b. LEFT JOIN
 - c. RIGHT JOIN
- 2.3. Which join will return all doctors even if they have no patients assigned? Write the SQL query for it.
- 2.4. Create a view to display doctor information along with their patients.
- 2.5. Set default values of the direct columns with valid default values (e.g. Date).