

University of Sulaimani
College of Science – Computer DEPT.
Subject: Database Management System
Allowed Time: 60 minutes
Lecturer: Dr. Mohammed A. Mohammed
Stage: 3rd



حكومه‌تی هه‌رێمی كوردستان – عێراق
سه‌رۆكایه‌تی نه‌نجومه‌نی وه‌زیران
وه‌زاره‌تی خوێندنی بالاو توێژینه‌وه‌ی
زانستی
زانكۆی سلێمانی
كۆلیجی زانست – به‌شی كۆمپیوتەر
2023-2024

Name:

Group:

Q1: Explain the concept of functional dependencies. Provide examples to illustrate the notion.

(5 Marks)

Q2) Determine the normal form of the below schema, then convert it to 3rd normal form.

(7 Marks)

Part_ID \longrightarrow Description

Part_ID \longrightarrow Price

Part_ID, Comp_ID \longrightarrow No

Part				
<u>Part_ID</u>	Description	Price	Comp_ID	No

Q3: Consider the following schema for a university database:

(8 Marks)

Student (StudentID, Name, Department)

Course (CourseID, Title, Department)

Enrollment (StudentID, CourseID, Grade)

Given this schema, write relational algebra expressions to perform the following tasks:

1. Select all courses taken by the student with StudentID = 101.
2. Find the names of all students enrolled in the course with CourseID = 'CSCI101'.
3. List the StudentID and CourseID of all enrollments where the grade is 'A'.
4. Find the titles of all courses offered by the 'Computer Science' department.

Write your answer on the backside of this paper