Database Systems: Lab 6

ER Diagram and Schema

Question 1

Consider a database that includes the entity sets student, course, and section from the university schema and that additionally records the marks that students receive in different exams of different sections.

1. Construct an E-R diagram that models exams as entities and uses a ternary relationship as part of the design.

2. Construct an alternative E-R diagram that uses only a binary relationship between student and section. Make sure that only one relationship exists between a particular student and section pair, yet you can represent the marks that a student gets in different exams.
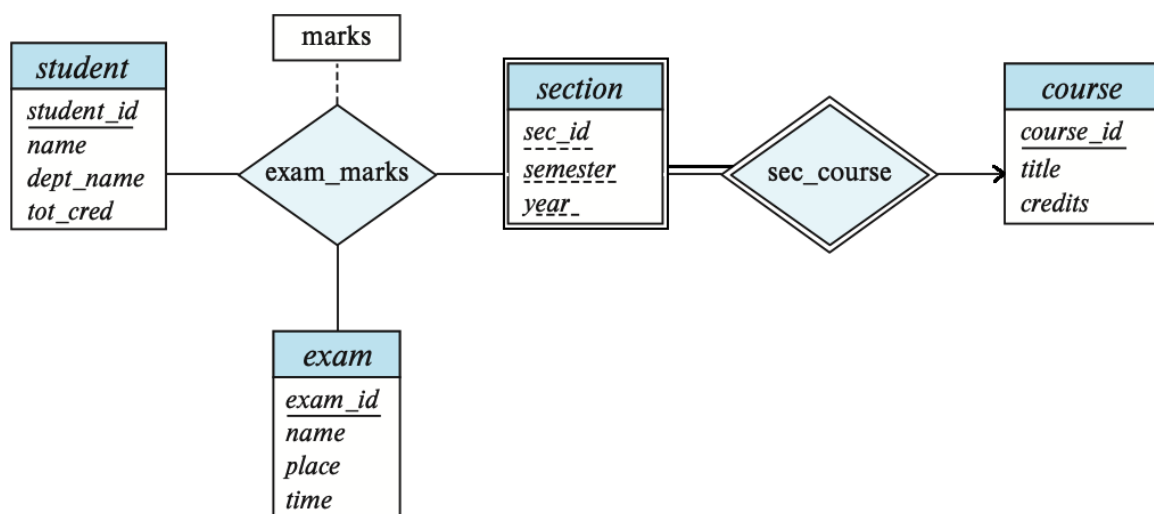
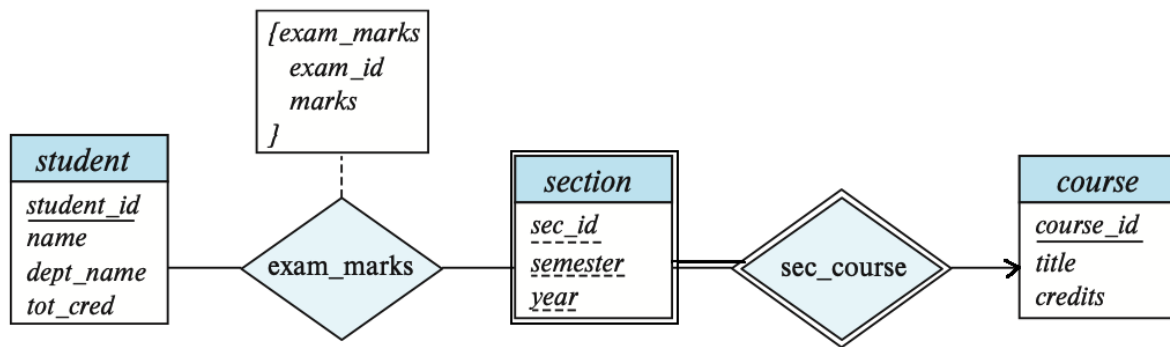**Solution:**

Figure 1: Solution 1.1

Figure 2: Solution 1.2

Question 2

Construct appropriate relation schemas for **Question 1**.

Solutions: From Solution 1.1:

student(<u>student_id</u>, name, dept_name, tot_cred)
course(<u>course_id</u>, title, credits)
section(<u>course_id</u>, <u>sec_id</u>, semester, year)
exam(<u>exam_id</u>, name, place, time)
exam_marks(<u>student_id</u>, <u>course_id</u>, <u>sec_id</u>, semester, year, <u>exam_id</u>, marks)

From Solution 1.2:

student(<u>student_id</u>, name, dept_name, tot_cred)
course(<u>course_id</u>, title, credits)
section(<u>course_id</u>, <u>sec_id</u>, semester, year)
exam_marks(<u>student_id</u>, <u>course_id</u>, <u>sec_id</u>, semester, year, <u>exam_id</u>, marks)