Student Name: _____   Roll No: _____

Program: BS(CS),BS(SE)   Examination: Mid Term
Semester: Spring-2021   Total Marks:50 Weightage: 30
Time Allowed: 2 hours &   Date: May 25, 2021
Course:CS203 Database Systems   Instructor Name: Ms. Safia Fatima
         CS219 Database Systems

NOTE: Attempt all questions.

Question No. 3

Attempt Time: 10 min, **Submission Time:** 5 min

Marks: 5

1. **Read the scenario below.**

In a University , there are several departments and each department has a head of department who belongs to Faculty. Department have a name , phone extension , specific mailing address and Students that belong to the department. Students can belong to only one Department at a time and Department can have more than one or no Student
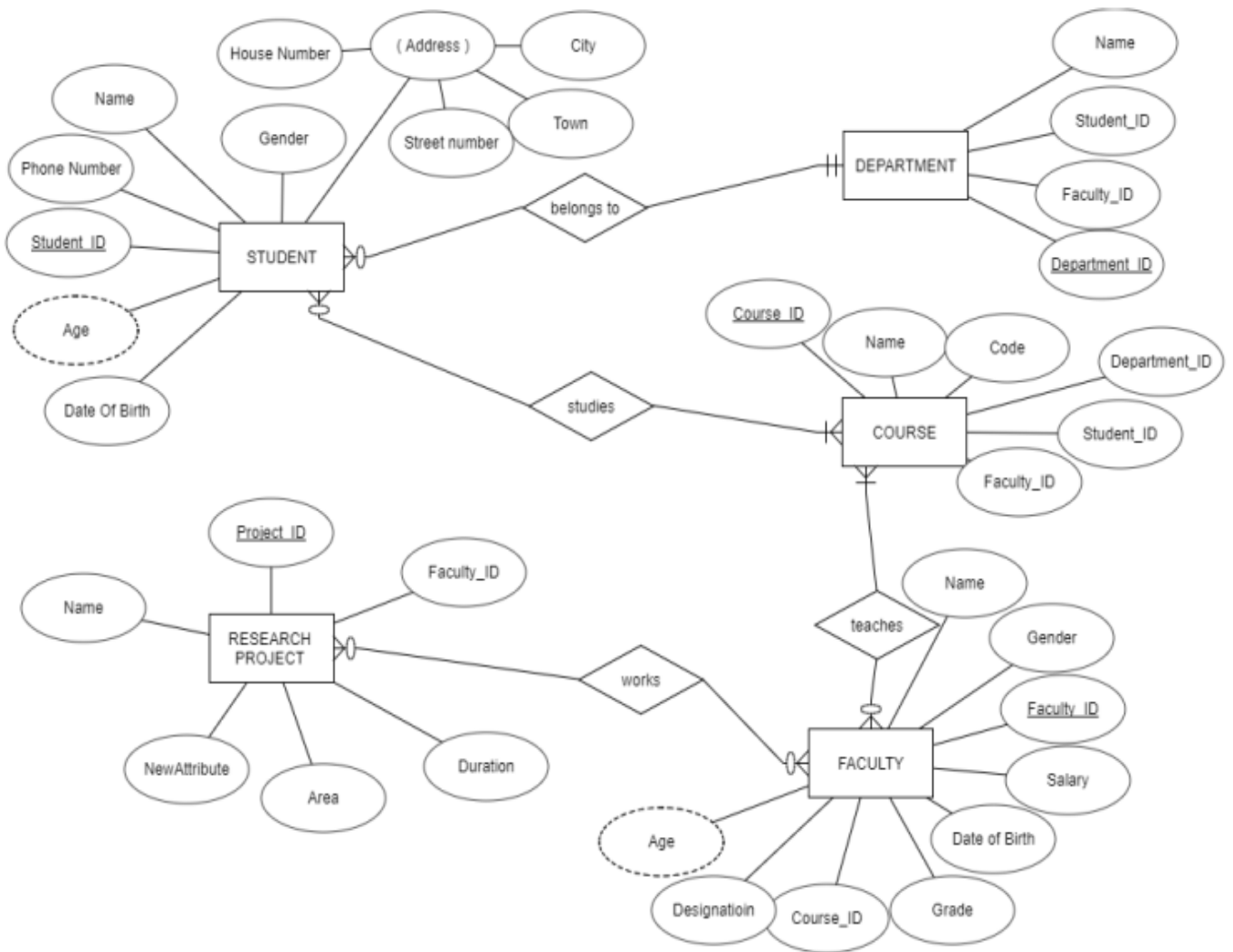
Students and faculty have names and unique identification numbers , with address , age , gender and other information. Student studies different Courses offered by University . Faculty teaches these Courses . In each semester one student can take more than one course and Faculty can teach more than one courses . Faculty members can teach in multiple Departments. Each course can be taught by many faculty members or no one

Entity-Relation Diagram of the above scenario is given below.

Your task is:

Consider your system have two types of user: **student and faculty.** Assign roles to the users like students can only view marks etc [write SQL commands] **Assign atleast 3 roles to each user.**

Note: while assiging roles you may use some scenario, do write each scenario

1. Examine the Patient Medication Form for Hospital shown in Figure below [Marks 15]

Patient Number: P10034

Full Name: Robert MacDonald

Bed Number: 84

Ward Number: Ward 11

Ward Name: Orthopaedic

Drug Number	Name	Description	Dosage	Method of Admin	Units per Day	Start Date	Finish Date
10223	Morphine	Pain Killer	10mg/ml	Oral	50	24/03/01	24/04/02
10334	Tetracyclene	Antibiotic	0.5mg/ml	IV	10	24/03/01	17/04/01
10223	Morphine	Pain Killer	10mg/ml	Oral	10	25/04/02	02/05/03

Your task is:
1. Identify the functional dependency [both full and partial function dependency] [**Time 10**] [**Marks 5**]
2. Convert the above table into 1NF, 2NF and 3NF. Do illustrate the step by step process.[**Time 20 min**] [**Marks 10**]

Note: Incase you are assuming some scenarios, do write it at the start of the answer

2. What is three-level database architecture. Explain the concept by using the idea to have sugggeted for your project. **[Time 10 mins]** **[Marks 5]**