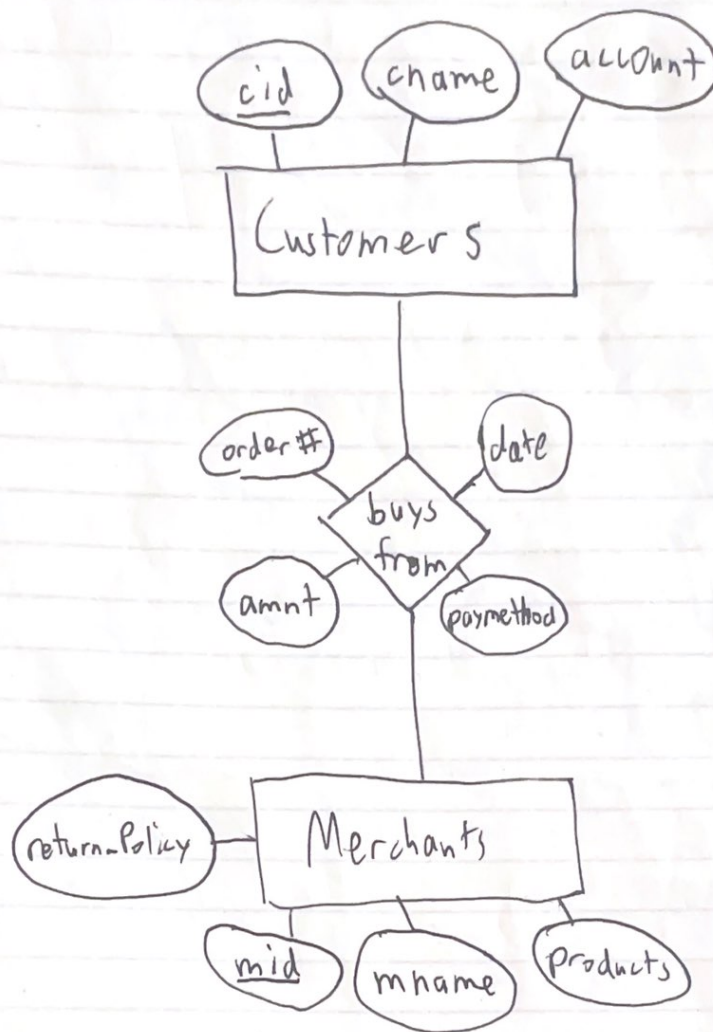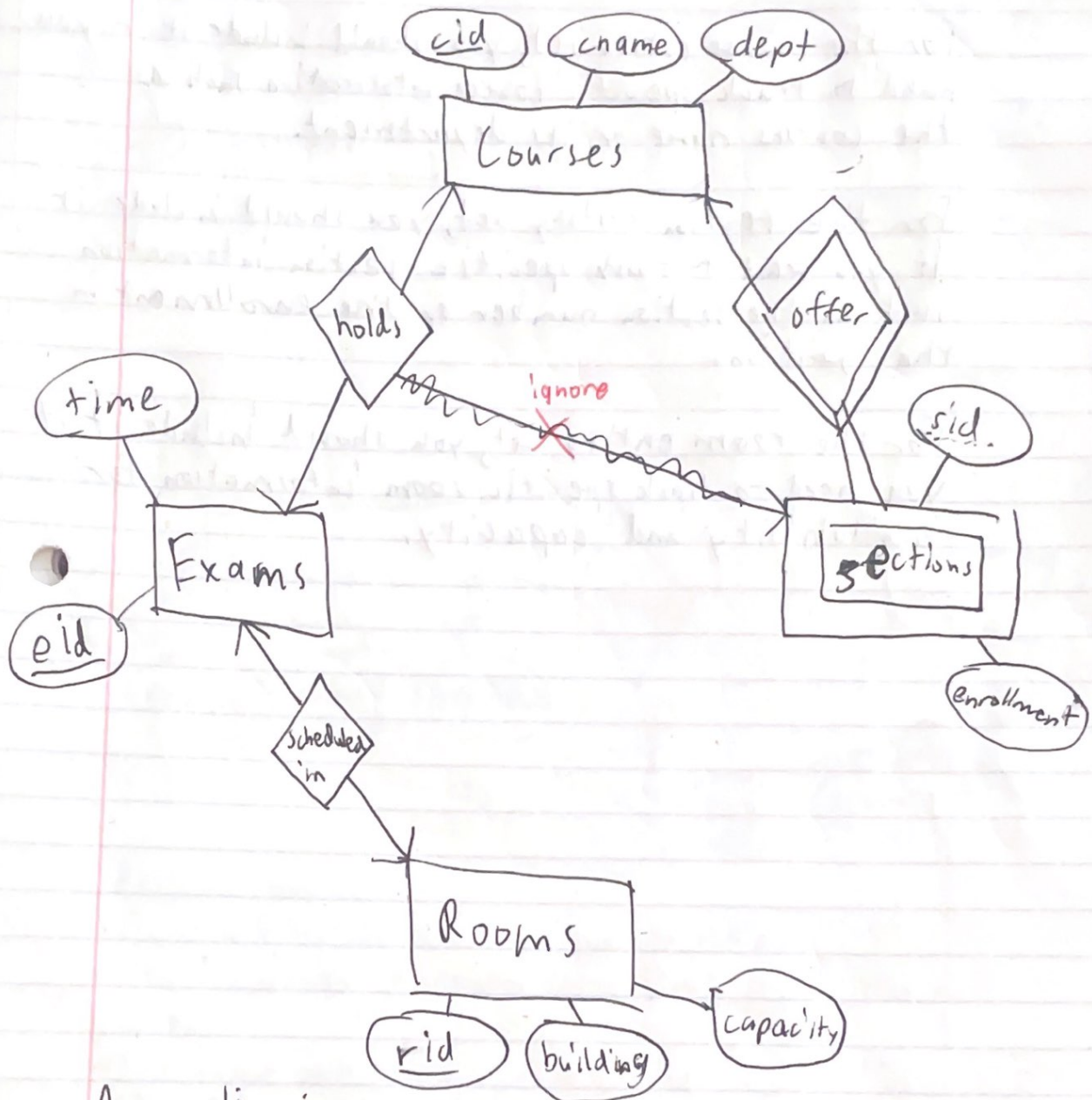Michael Wood CSC 351 HW1

Problem 1

Assumptions:
- Each customer can buy from multiple merchants. Each merchant can have multiple customers.
- All payment information and order information is located in the order itself, as attributes.
- All return policy info is located in the return_Policy attribute.
- All product info is located in the products attribute.
- Each customer and merchant has a unique id.

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Problem 2

The diagram shows an ER diagram with:
- Courses entity (attributes: cid, cname, dept)
- holds relationship
- offer relationship
- Exams entity (attributes: time, eid)
- Sections entity (attributes: sid, enrollment)
- scheduled in relationship
- Rooms entity (attributes: rid, building, capacity)
- ignore (crossed out in red)

Assumptions:
- The Exams Entity set represents a Final Exam. One final is taken place in each course/section.
- Each has a unique room number/id. (each room)
- Each exam has a unique id.
- Each exam is taken in one room at a time.
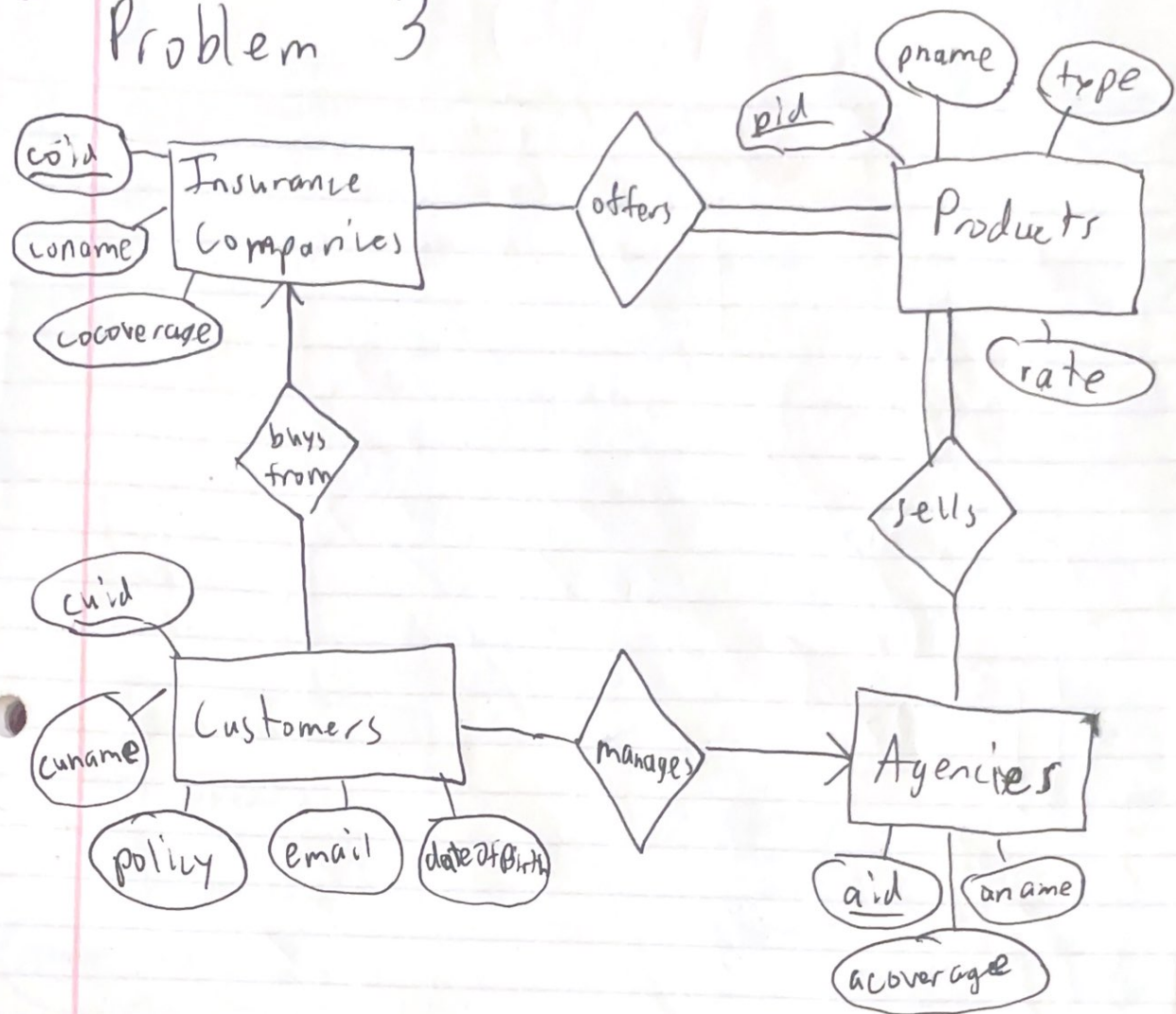- Each section of a course has the same final exam.

Problem 2 (cont.)

For the course entity set, you should include it if you need to track specific course information such as the courses name or its department.

For the section entity set, you should include it if you want to track specific section information such as the section number or the enrollment in that section.

For the room entity set, you should include it if you need to track specific room information for availability and capacity.
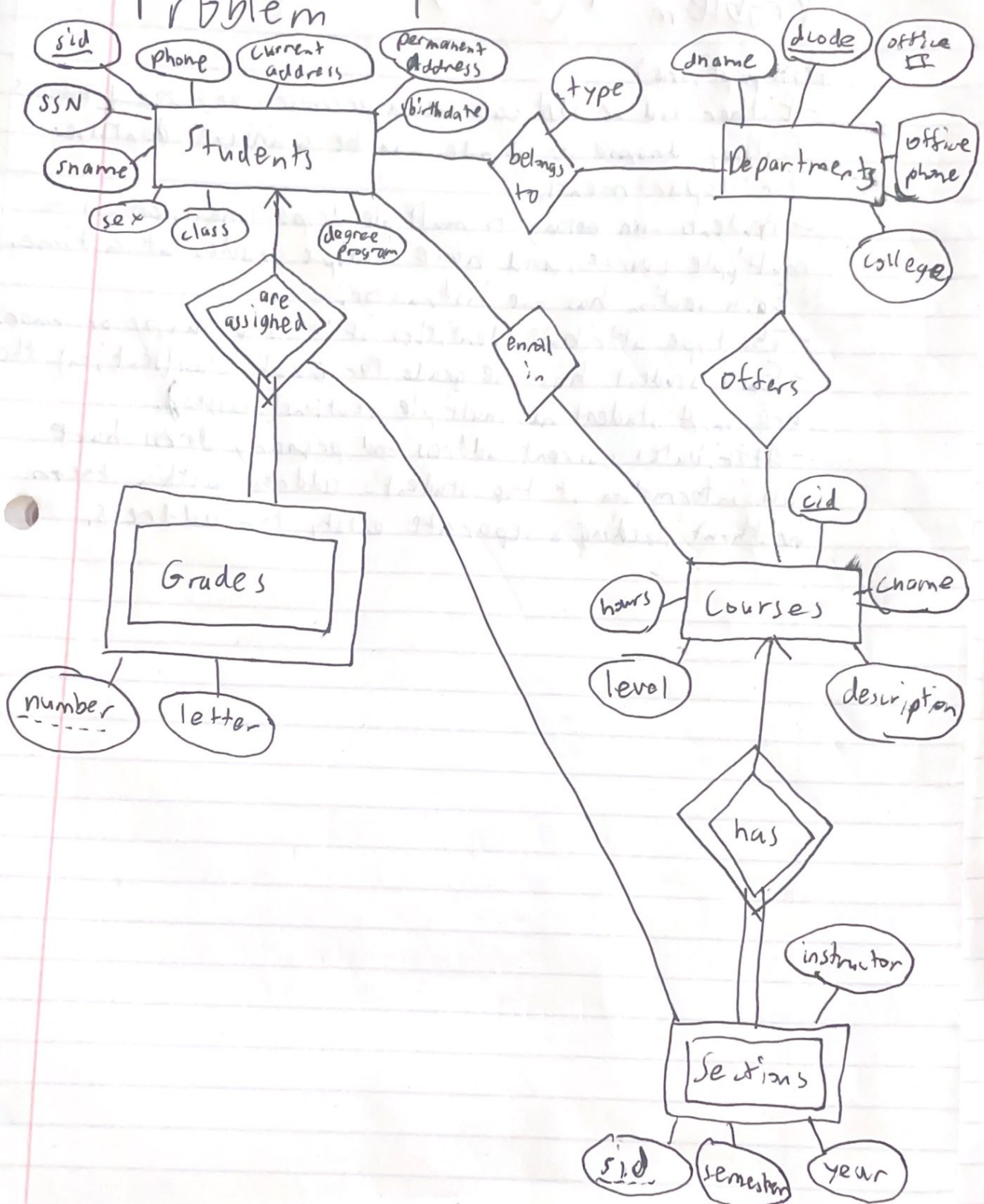
Problem 3

Assumptions:
- Each entity set has a unique identifier.
- The coverage attributes specify the states the sets cover.
- The type attribute specifies the type of insurance.
- The policy attribute specifies the policy information of the customer.
- Each customer is managed by one agency and buys from one insurance company. Agencies and Insurance companies can have multiple customers.

Problem 4

Entity-Relationship diagram containing:

Students entity with attributes: sid, phone, current address, permanent address, SSN, sname, sex, class, birthdate, degree program

Departments entity with attributes: dname, dcode, office #, office phone, college

Courses entity with attributes: cid, cname, hours, level, description

Grades (weak entity) with attributes: number, letter

Sections (weak entity) with attributes: sid, semester, year, instructor

Relationships:
- **belongs to** (Students — Departments), with attribute: type
- **are assigned** (Students — Grades)
- **enroll in** (Students — Courses)
- **Offers** (Departments — Courses)
- **has** (Courses — Sections)

Problem 4 (cont.)

Assumptions:
- Either sid or SSN can be a primary key for students.
- Either dname or dcode can be a unique identifier for departments.
- Students can belong to multiple departments, enroll in multiple courses, and have multiple grades at a time.
- Each section has one instructor.
- The type attribute identifies if it is a major or minor.
- Each student has one grade for each class (section) they are in. A student has multiple sections (classes).
- Attributes current address and primary dress have all information of the student's address within them without needing a separate entity for address.