**Question 1 :** Suppose you are given the following requirements for a simple database for the National Hockey League (NHL):

* the NHL has many teams,
* each team has a name, a city, a coach, a captain, and a set of players,
* each player belongs to only one team,
* each player has a name, a position (such as left wing or goalie), a skill level, and a set of injury records,
* a team captain is also a player,
* a game is played between two teams (referred to as host\_team and guest\_team) and has a date (such as May 11th, 1999) and a score (such as 4 to 2).

Construct a clean and concise ER diagram for the NHL database.

**Question 2:** A university registrars office maintains data about the following entities:

1. courses, including number, title, credits, syllabus, and prerequisites;
2. course offerings, including course number, year, semester, section number, instructor(s), timings, and classroom;
3. students, including student-id, name, and program;
4. instructors, including identi‑cation number, name, department, and title.

Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled. Construct an E-R diagram for the registrars of‑ce.Document all assumptions that you make about the mapping constraints.

**Question 3 :** Consider a university database for the scheduling of classrooms for ‑final exams. This database could be modeled as the single entity set exam, with attributes course-name, section-number, room-number, and time. Alternatively, one or more additional entity sets could be defined, along with relationship sets to replace some of the attributes of the exam entity set, as

* course with attributes name, department, and c-number
* section with attributes s-number and enrollment, and dependent as a weak entity set on course
* room with attributes r-number, capacity, and building

Show an E-R diagram illustrating the use of all three additional entity sets listed.