

Full Name (in Block Letter): _____

ID: _____ Section: 2/3 Signature: _____

Date: _____ Total Marks: 20 Time: 40 Minutes

Question 1 [CO2]: Consider a POKEMON database. The data requirements are summarized as follows:

[1 X 12 = 12]

1. There are pokemon trainers who are mainly characterized by attributes such as, name consisting of first and last name, SSN, DOB, Addresses. Each address is composed of city, zip, village, region and house_no.
2. Pokemon trainers own pokemons. For a pokemon, we only store its name. Note that there may be multiple pokemon having the same name (for example there can be multiple pikachus) each having different owners. For simplicity we assume that each pokemon is owned by a pokemon trainer. Each pokemon has HP, type, evolve_stage, last_evolution_date, and a set of attacks. Also, we want to store the number of days passed since its last evolution.
3. Pokemon trainers battle with each other. A pokemon trainer invites another trainer for a battle. Battle duration, prize_money and winner are stored.
4. There are Pokemon Leagues where pokemon trainers can join. A league is uniquely identified by start_date and league_name. We also want to store the end_date, region_name and duration of each league (!). Each pokemon trainer who participates in the league gets a standing.
5. Pokemons are kept in the Pokemon Nursery when they are not with their trainers. A pokemon may be placed into multiple Pokemon Nurseries over time. For each nursery, we want to store its name, location, director, one or more nurses and set of facilities provided. A fee has to be paid for each pokemon when kept in the nursery.

Design an entity–relationship diagram for the pokemon database. Discuss any assumptions you make, and then justify your ER design choices. DO NOT make extra entities or relationships if not specified by the requirements.

Question 2 [CO2]:

Design an EER diagram for a Football League Management System. The system wants to keep track of all their players, coaches, matches, teams and trophies. They have hired you to help them design the database for that purpose.

[1 X 8 = 8]

You can design your EER as you wish, but it must satisfy the following constraints:

- a. there should be at least one disjoint-total specialization/generalization.
- b. There should be at least five regular/strong entities [excluding subclasses]
- c. There must be a weak entity
- d. There must be at least one M:N relationship.
- e. There must be at least one derived attribute.