Sheet 2

1. Define the following terms: data model, database schema, database state, DDL, DML.
2. Define the ER Model? Discuss its basic concepts (entity, attribute, relationships)?
3. What are the differences between strong and weak entities?
4. Discuss the types of attributes (simple, key, composite, multivalued, and derived attributes)?
5. Discuss ERD relationship degree, cardinality, participation constraints, and min-max notations?
6. What is the cardinality and existence of each of the following relationships in just the direction given?
   - Husband to wife
   - Student to degree
   - Child to parent
   - Player to team
   - Student to course

7. Draw an ER diagram. Estimate any missing assumptions.

The International Secondary School is located in Cork City. You have been hired by the school to migrate their school records from a series of spreadsheets into one centralized relational database file. As part of the systems requirements process, the following information about how the school uses its data has been uncovered:

When a new student comes to the school their details are recorded by the school administrator. The administrator records the student's first name, last name, date of birth, home address, sex, medical conditions, school year, and school registration date. Every student must have one contact person (usually a parent or guardian) in case the school needs to make contact. A contact person may be responsible for multiple students (in the case of siblings attending the school). The contact's name, address, home number, mobile number, and email address are recorded by the school. Once a student is registered, they are assigned to classes. An example of a class would be "French – Class B, 10am-11am, Tuesday, 5th year, Mr. Smith, class quota: 25 students". A student will be assigned to many different classes. A class will have many students assigned. Each class is taught by a single teacher. However, a teacher at the school may teach numerous classes. Teacher records are also maintained by the school and include name, office location, qualifications, contact number, and subject areas. A class will be for a single subject (Irish - Ordinary Level, History

– Higher Level, Art – Higher Level, etc.) and a subject can have many scheduled classes. Twice a year (December and May) students sit examinations for each class. The individual student result for each class examination is recorded by the school in the form of a percentage, grade, and teacher comment.