Second Class Test

This is a pencil-and-paper test. You do not need to use the computer.

You may use sheets of paper from your notebook for rough work.
But write all yours answers here.

ID Number ______________________________________________________________

Given on the next page is the description of a problem domain for a database.

1 Develop an entity-relationship model for the problem domain. 40%
2 Annotate the diagram with multiplicities. 20%
3 Translate your design into relational schemas, with primary keys identified and non-null attributes identified. 20%
4 Write SQL “CREATE TABLE” statements for as many tables as time permits. You must handle at least one relationship of the E-R model, but possibly several. 20%
A database is required for the airport of a small town. The airport maintains a number of airplanes, technicians that maintain them and air traffic controllers.

- Every airplane has a registration number, and each airplane is of a specific model.
- The airport accommodates a number of airplane models, and each model is identified by a model number (e.g., DC-10) and has a capacity and weight.
- A number of technicians work at the airport.
- Each technician is an expert on one or more airplane models, and his or her expertise may overlap with other technicians.
- Traffic controllers must have an annual medical examination. For each traffic controller, you must store the date of the most recent exam.
- For all airport employees (including technicians and traffic controllers), you need to store the name, employee number, address and phone number.
- The airport has a number of tests that are used in three-month intervals to ensure that airplanes are air-worthy. Each test has a test number assigned by the International Air Travel Agency (IATA), a name, and a maximum possible score.
- The IATA requires the airport to keep track of each time a given airplane is tested by a given technician using a given test. For each testing event, the information needed is the date, the number of hours the technician spent doing the test, and the score the airplane received on the test.
- The database make it possible to administer tests comprehensively. For example, it must be possible to identify which airplanes still need to be tested during the current three-month period.

*You may start writing your answers here.*
Continue writing your answers here and overleaf.