Term 3 Week 3 DB Quiz 1

1 A car hire company needs a relational database to store data about cars, customers and the cars hired. Cars are hired for a minimum period of one day and the charge is calculated as the number of days multiplied by the day rate. If a car is used for part of a day, a full day is charged.

There are **four** categories of cars: sub-compact, compact, regular and luxury. The category determines the day rate. All cars in each category have the same day rate.

An initial database was designed with three tables:

```
Car(RegistrationNumber, Make, Model, Category, DayRate)

Customer(DriverLicenceNumber, Name, Address, TelephoneNumber)

Hire(RegistrationNumber, DriverLicenceNumber, DateHired,
     DateExpectedBack,DateReturned)
```

(a) The database needs to be normalised.

(i) Explain why the table `Car` is **not** in third normal form (3NF). [2]

(ii) State **one** drawback of the table `Car` **not** being in 3NF. [1]

(b) Normalise the database by creating an Entity Relationship Diagram (ERD) and a set of table definitions to represent the database. Identify the primary and foreign keys in each table. [8]