# Homework 4 Updating tables using SQL Answers

# 1. The entities Flight and Passenger are linked in a one-to-many relationship.

#  The table Flight has the following compulsory fields:

 FlightID CHAR (5) (Primary key field)

 Date DATE (dd/mm/yy) (Primary key field)

 DestinationID CHAR (4)

 The table Passenger has the following compulsory fields:

 PassportNo CHAR (8) (Primary key)

 Surname VARCHAR (20) (Variable length)

 Firstname VARCHAR (20) (Variable length)

 FlightID CHAR (5)

 Date DATE

 (a) What is a composite primary key? Give an example. [2]

 A composite primary key is two or more fields which together uniquely identify a record.

 FlightID and Date form the composite primary key of the Flight table.

 (b) Identify a foreign key in the tables above. What is the purpose of the foreign key? [2]

 FlightID, Date is a composite foreign key in Passenger. It acts as a link between Flight and Passenger.

 (c) Write an SQL statement to extract the passport numbers, surnames and firstnames of all passengers on Flight BA401 on 12/11/2016. [5]

 SELECT PassportNo, Surname, Firstname

 FROM Passenger

 JOIN Flight

 ON Flight.FlightID = Passenger.FlightID AND Flight.Date = Passenger.Date

 WHERE Flight.FlightID = “BA401” AND Flight.Date = #12/11/2016#

 or

 SELECT PassportNo, Surname, Firstname

 FROM Passenger, Flight

 WHERE Flight.FlightID = Passenger.FlightID

 AND Flight.FlightID = “BA401”

 AND Flight.Date = #12/11/2016#

(d) Write an SQL statement to create the table Flight. [5]

 CREATE TABLE Flight

 (

 FlightID CHAR(5) NOT NULL,

 Date DATE, NOT NULL,

 DestinationID CHAR(4) NOT NULL,

 PRIMARY KEY (FlightID, Date)

 )

 (e) Write an SQL statement to create the table Passenger [5]

 CREATE TABLE Passenger

 (

 PassportNo CHAR (8), NOT NULL PRIMARY KEY,

 Surname VARCHAR (20) NOT NULL,

 Firstname VARCHAR (20) NOT NULL,

 FlightID CHAR (5),

 Date DATE

 )

 (f) Write an SQL statement to add two new columns for Telephone,
16 characters (variable length) and email, 20 characters (variable length) to the Passenger table. [2]

 ALTER TABLE Passenger

 ADD Telephone VARCHAR(16), email VARCHAR(20)

 (g) Write an SQL statement to delete the column email from the Passenger table. [2]

 ALTER TABLE Passenger

 DROP email

 (h) Write an SQL statement to insert a record for passenger Jo Harris, passport number 12345678. [2]

 INSERT INTO Passenger (PassportNo, Surname, Firstname)

 VALUES (“12345678”, “Harris”, “Jo”)

2. Name and briefly describe a serialisation technique which ensures that transactions do not overlap in time and ensures that updates are not lost. [3]

 Timestamp ordering – when a database record is read or written, it is given a read or write timestamp. When a user comes to rewrite the record, if the timestamp is not the same, this means another user has opened it, so the database will send an error message to user1.

 or Commitment ordering – similar, but also prevents deadlock by taking into account the dependency of one part of a transaction on another.

 TOTAL 28 marks