

Ollscoil na hÉireann, Gaillimh

National University of Ireland, Galway

Semester 1 Examinations 2001/2002

**Final Year Commerce Examination**

**Database Technologies (MS310)**

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Time allowed: TWO hours

Answer **QUESTION FIVE** and **TWO** other questions.

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**Question 1**

The Relational Database Management System (RDBMS) is seen as the dominant database model? Discuss.

(30 marks)

**Question 2**

Outline the primary concerns relating to the security of organizational databases, and illustrate how SQL commands may be used to enforce security.

(30 marks)

**Question 3**

Transaction management is a vital function of a database management system (DBMS) and is critical to assuring data integrity, particularly in a multi-user environment. Discuss.

(30 marks)

**Question 4**

Describe the concept of integrity – illustrate your answer using examples from both SQL and Microsoft Access.

(30 marks)

### Question 5

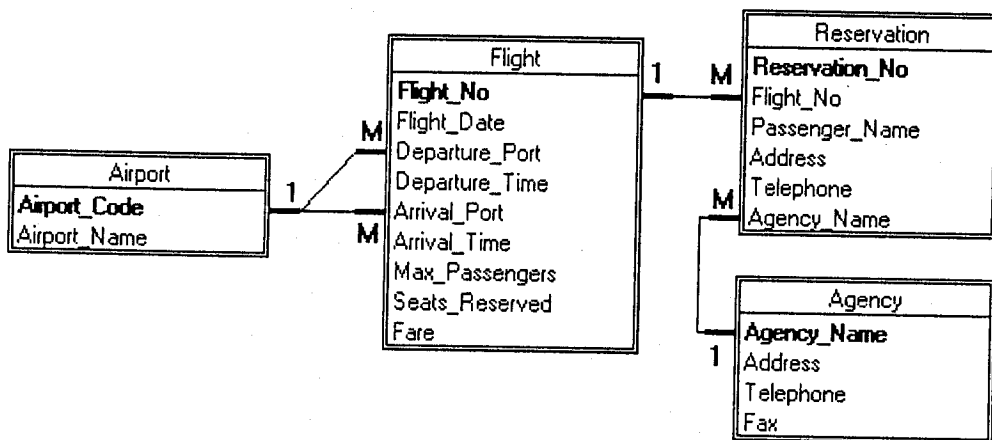
Given the following tables and relationships, you are required to provide the SQL commands necessary to execute the transactions (a) to (t) below. You may use ANSI SQL or Microsoft Access SQL where there are dialect versions. **It is recommended that you clearly state any assumptions that you make.**

(40 marks)

#### Notes:

(i) All dates are in 2002 unless otherwise specified.

(ii) Airport Codes, where known, are indicated within parentheses; for example, Galway (GWY). Where you are not told what the Airport Code is, you are expected to find it by looking up the Airport table by Airport Name.



- List the names and addresses of all travel agencies, sorted in ascending order of Agency Name.
- List the names and telephone numbers of all travel agencies who do **NOT** have a fax machine.
- How many seats remain available on flight BD108 departing Dublin on June 15.
- Flight BM383 that was scheduled to depart Munich (MUC) at 15:50 today will be delayed by one hour. Find the names of all affected passengers.
- At what time does the last flight available tomorrow from Dublin (DUB) to Galway (GWY) depart?
- How many people intend to travel from Dublin (DUB) to London Heathrow (LHR) on June 30?
- What is the cheapest fare from Dublin (DUB) to Munich (MUC)?
- Find the total number of flights arriving at Edinburgh on June 24.

- i) List the names of all agencies, and the number of reservations made through each agency. (*Hint: use Grouping*)
  - j) Flight LU815 departs London Heathrow (LHR) for Paris (CDG) tomorrow. List the Flight Numbers of all available connection flights from Manchester (MAN).
  - k) List the codes and names of all airports, sorted in descending order of code.
  - l) Find the names of all flight destinations directly available from Belfast (BFS and BHD). No destination should be listed more than once.
  - m) All flights destined for Sligo (SXB) today have been redirected to Knock because of cross-winds. How many flights are affected?
  - n) List the flight numbers of all flights from Cork (ORK) to Prestwick (PIK) whose fare is less than the average fare for that route.
  - o) How many agencies have addresses in Limerick? (*Hint: use Pattern Matching with wildcards*)
  - p) Nial Quinn wishes to cancel his reservation on Flight SW029. Perform the relevant update and delete operations.
  - q) Corrib Travel Agency have installed a fax, contactable at 353-91-597935. Implement the necessary modification.
  - r) All airfares on routes from Galway (GWY) are to be raised by 10% because of tariffs, effective from July 1. Update the database accordingly.
  - s) Data pertaining to all flights before April 1 is obsolete and is to be transferred to an archive for statistical purposes. Specify the SQL statements required to create the archive table, and to transfer data from the current table. (*Hint: use Multi-Row Insert, and Delete*)
  - t) Make the above changes permanent.
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