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# Key skills information technology Level 4 - Airport

Wednesday 16 - Friday 18 June 2004

## Test Paper

### YOU NEED

- This test paper
- A cover sheet
- Access to a computer, software and a printer
- Access to the data files to support the scenario 'Airport': **Aircraft, Airport, CanLand, Details and FuelCap**

You may use a bilingual dictionary

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**Do NOT open this paper until you are told to do so by the supervisor**

THERE ARE 4 TASKS IN THIS TEST

Task A	(total 26 marks)
Task B	(total 9 marks)
Task C	(total 14 marks)
Task D	(total 1 mark)

Total marks available: 50

**Try to complete ALL the tasks**

**YOU HAVE 2 HOURS 30 MINUTES TO FINISH THE TEST**

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### INSTRUCTIONS

- Make sure your personal details are entered correctly on the cover sheet
- Make sure you print out all your work
- Task D **must** be completed; if necessary, it may be carried out after the end of the test

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**At the end of the test, check that your name appears on EVERY printed page  
Attach your printouts and this test paper to the cover sheet and hand them  
to the supervisor**

**REMEMBER: YOU HAVE 2 HOURS 30 MINUTES TO FINISH THE TEST**

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Try to complete ALL the tasks  
**ENTER YOUR NAME ON EVERY PAGE, PREFERABLY AS A FOOTER**  
 Pages without a name will not be marked

**CargoGO** is a company tasked with analysing the performance of a fleet of leased aircraft.

You will use spreadsheet and relational database software to

- import data files into a spreadsheet and perform calculations on the data
- import data files to create three database tables
- establish relationships between the three tables
- interrogate the database and create a report

### Task A

A spreadsheet is required to calculate fuel consumption.

	A	C	D	E	F
1	AircraftCode	MaxTakeoffWeight(kg)	FuelCapacity(litres)	CruiseSpeed	MaxRange(km)
2	321	83000		874	4350
3	330	230000		917	10400

1 Worksheets for Aircraft data and Fuel Capacity are required.

- a Open a spreadsheet application and create a new spreadsheet. Import the data file **Aircraft** into a worksheet starting at cell **A1**. (If the software you are using does not allow import, then open the data file.) The data is comma delimited and text is enclosed in quotes (").
- b Name the worksheet **Aircraft**.

	A	B	C	D	E
1	AircraftCode	FuelCapacity(US Gallons)		Gallon to Litre Conversion	3.876
2	321	6260			
3	330	25760			

- c Create another worksheet and import the data file **FuelCap** into this worksheet starting at cell **A1**. (If the software you are using does not allow import, open the data file in a new spreadsheet, copy and paste the data as required then close the new spreadsheet.) The data is comma delimited and text is enclosed in quotes (").

- d Name the worksheet **Fuel Capacity**.
- e Name the range **A1:B15** on the **Fuel Capacity** worksheet as **Fuel**.

5 marks

2 Conversion from gallons to litres is required.

- a Enter a formula in cell **D2** of the **Aircraft** worksheet to calculate the fuel capacity in litres. This formula will need to look up the fuel capacity in gallons for the aircraft code and use cell **E1** on the **Fuel Capacity** worksheet as the conversion factor. (1 US gallon is equal to 3.876 litres.)
- b Use a formula to round the value in cell **D2** to the nearest whole number.
- c Replicate this formula for all the other aircraft.
- d Save the spreadsheet using the characters **S1**- followed by your initials as the filename, for example **S1-FJB**.

13 marks

3 Fuel economy calculations are required.

- a Insert the heading **FuelConsumption(litres/km)** in cell **G1** of the **Aircraft** worksheet.
- b Fuel consumption calculations are based on 90% of the aircraft's fuel capacity because 10% of the fuel capacity is reserved in all aircraft. Enter a formula in cell **G2** to calculate the fuel consumption in litres per kilometre by dividing the unreserved **FuelCapacity(litres)** by **MaxRange(km)**.
- c Use an appropriate formula to round down the result in **G2** to one decimal place.
- d Replicate this formula for all the other aircraft.
- e Format the values in column **G** to display two decimal places.
- f Sort the data so the aircraft are listed in ascending order of **FuelConsumption(litres/km)**.
- g Make sure all information is fully displayed.
- h Place your name, today's date, the page number, total number of pages and the title **Printout-1** in a footer and print the worksheet **Aircraft** in landscape format.
- i Save the spreadsheet using the characters **S2**- followed by your initials as the filename, for example **S2-FJB**.
- j Amend the title in the footer to **Printout-2** and print the worksheet **Aircraft** in landscape format showing all formulas, sheet row numbers, sheet column letters and gridlines. Make sure all information is fully displayed.

- k Save the spreadsheet using the characters **S3-** followed by your initials as the filename, for example **S3-FJB**.
- l Close the spreadsheet application.

8 marks

### Task B

A database is required to allow enquiries and to produce reports.

- 4 A database is required.
  - a Open a database application and create a new database. The filename for this database must be the characters **D1-** followed by your initials, for example **D1-FJB**. If your database software requires you to save the file, you should save it after each of the following instructions using the next number in sequence each time, for example **D2-FJB** then **D3-FJB** and so on.
  - b Import the data file **Details** into a table and name the table **Aircraft**. The data includes a header row, is comma delimited and text is enclosed in quotes (").
  - c Select **AircraftCode** as the primary key.

AircraftCode	FuelCapacity(litres)	CruiseSpeed	MaxRange(km)	FuelConsumption
300	63489	924	7500	7.619
310	62520	946	8050	6.99

1 mark

- 5 Database tables of Airport and CanLand are required.
  - a Import the data file **Airport** into a table and name the table **Airport**. The data includes a header row, is comma delimited and text is enclosed in quotes (").
  - b Select **AirportCode** as the primary key.

AirportCode	City	Country
ACA	ACAPULCO	MEXICO
ADD	ADDIS ABABA	ETHIOPIA
AKL	AUCKLAND	NEW ZEALAND
AMD	AHMEDABAD	INDIA

- c Import the data file **CanLand** into a table and name the table **CanLand**. The data includes a header row, is comma delimited and text is enclosed in quotes (").
  - d Select **AircraftCode** and **AirportCode** combined as the primary key.

- e Set the data type of the **Cargo** and **Passenger** fields to logical (your software may display these fields in a form other than Yes/No).

AircraftCode	AirportCode	Distance(km)	Passenger	Cargo
300	CMN	2088	Yes	Yes
310	BLR	7949	Yes	Yes
310	BOS	5279	No	Yes
310	HEL	1823	No	Yes

3 marks

- 6 Relationships between the database tables are required.
- Set suitable relationships between the tables **CanLand**, **Airport** and **Aircraft**.
  - Use 'Screen Dump', 'Print Screen' or 'Documenter' techniques to show the design of the database, including all the field names and primary keys in each table and the relationships between the tables. Place your name, today's date and the title **Printout-3** in a footer and print the database design.

5 marks

### Task C

- 7 A report is required for cargo.
- Create a query named **QrySpain** to find all aircraft that can carry cargo to airports in Spain and have a maximum take-off weight of at least 78240kg. Include the following fields in the query: City, Country, Description, MaxTakeoffWeight(kg), Cargo, Distance(km) and FuelConsumption.
  - Use the query to produce a report in landscape form with the heading **Fuel consumption for cargo to Spain**.
  - Include only the fields: City, FuelConsumption, Distance(km), Description and MaxTakeoffWeight(kg) in the report, presented in columns in this order. Make sure all information is fully displayed.
  - Show the records grouped by **City** and in descending order of **FuelConsumption**.
  - Add a column at the right of the report headed **Fuel Quantity** to show the amount of fuel needed by multiplying the fuel consumption by the distance. Format the field to one decimal place.
  - Add a label **Average Fuel Quantity** and a field to show the average fuel quantity for the different aircraft flying to each city. Format the field to one decimal place.

- g Place your name, today's date, page number, number of pages and the title **Printout-4** in a footer and print the report in landscape. Make sure all information is fully displayed.

**14 marks**

### Task D

**The following task must be completed.** If you have not completed this item within the time allowed, it must be completed at the end of the test.

- 8** A printout of filenames is required.
- a Provide a copy of all filenames created during the test. This may be in the form of a screen dump (print screen) of the filenames with your name, today's date and the title **Printout-5** as a footer.

**1 mark**

## End of test

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### Important note

Collect together all your printouts. They should include

- Printout-1** Worksheet Aircraft showing data
- Printout-2** Worksheet Aircraft showing formulas
- Printout-3** Relationships and tables
- Printout-4** Report for Cargo to Spain
- Printout-5** List of filenames created

Check that your name is printed on every page. If it is not, write it there and ask the supervisor to authenticate that the page contains your own work. Now attach all the pages in order, and this test paper, to the cover sheet and hand them to the supervisor.