



## Edexcel GCE

# Applied Information and Communication Technology

## Unit 3: The Knowledge Worker

10 – 14 January 2011

**Time: 2 hours 30 minutes**

Paper Reference

**6953/01**

### You must have:

Short treasury tag, Survey\_exam.txt, Pilots\_exam.txt,  
BAA\_exam.txt, AirStuff\_exam.txt, Airline\_exam.xls, Cover Sheet

### Instructions

- Complete your candidate details on the cover sheet provided.
- All tasks must contain your name, candidate number, centre number and activity number.
- At the end of the examination:  
All printouts should be placed in the correct order.  
Use a treasury tag to attach your printouts (**as shown**) to Page 2 of the cover sheet.

### Information

- There are **five** activities in this examination totalling 88 marks. **2** further marks are allocated to Standard Ways of Working giving a total of 90 marks.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (\*) are ones where the quality of your written communication will be assessed  
– *you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.*

### Advice

- Read through the Scenario carefully.
- Work through the activities in order.
- Attempt **ALL** activities.
- Label your printouts clearly as instructed.
- Printing must be undertaken within the examination time.

Turn over ►

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## Lyonair – Low Cost Airline

Michelle Lyons graduated from Leeds University with a 1st class honours degree in Marketing. Michelle's father had always expected her to take over the family-run business, Lyons Logistics. Her father died in 2007 and Michelle became the CEO of the small but efficient transport and logistics company. Since that time Michelle has expanded the business and it is currently the second biggest road transport company in the UK.

Looking for ways to expand and diversify, Michelle instigated the takeover of Jordon's Freight Services. At that time Jordon's operated two freight aircraft out of London City Airport. Running the air freight business made Michelle think about creating a passenger airline and so Lyonair was born.

Having agreed a loan with the bank, Michelle bought four new aircraft at £100,000,000 each. Michelle has decided to run four return routes from London to: Madrid, Paris, New York and Canberra (Australia). The Canberra route refuels at Dubai, where passengers may leave or join the flight. There will be daily return flights to Paris and Madrid. The other routes will operate twice a week. On all flights passengers will be allowed 20 kg of baggage.

Lyonair's planes all have a seating capacity of 366 with identical fuel capacity, baggage space and fuel consumption. The planes are expected to have a lifespan of about 300,000 flying hours as long as they have a full service check every 5000 hours. Michelle has decided to rotate the planes so that they fly different routes each week. This way the life of the aircraft will be extended.

The number of staff on board a plane will vary depending on whether the flight is long haul or short haul. All planes will have a pilot, co-pilot, chief steward (or stewardess) and three other flight attendants. In addition a long haul flight will have an extra flight attendant and a navigator.

Michelle now needs to set ticket prices in order to maximise her profit. She has started to create a ticket-pricing model but has been called away to deal with problems in the road transport arm of the company. She has asked you to complete the model and to recommend prices for all routes.

## Description of the model

Worksheet	Description
CostRevenue	This is the worksheet you will use to set the ticket prices. The total costs and revenues will be calculated and displayed.
Weight	This worksheet will be used to calculate the weight of a particular plane on take-off. The weight of the fuel is not included in this worksheet. The weight of the plane has a significant effect on the fuel consumption.
Passengers	This worksheet will be used to estimate the number of passengers that would fly at a particular price.
Plane Stats	This worksheet contains useful statistics about a plane.
Staff	This worksheet will be used to calculate the cost per kilometre of the different staff.
Distances	This worksheet will contain the flying distances between the airports.
Fuel	This worksheet will calculate the cost of fuel for each flight.
Airport Fees	This worksheet contains airport fees.

**Some cells in the model are password protected. Should you wish to experiment with the model, the password is *edexcel*. Be aware that if you change the contents of any protected cell the model may not work.**

## Your Task

You have been asked by Michelle Lyons of Lyonair to recommend ticket prices for all routes.

## The Data

Lyonair commissioned a market research company to carry out a survey. The market research company employed 150 people for 30 days to ask passengers at Stanstead Airport which flights they were taking, and how much they paid for their ticket. Each survey taker averaged 800 responses per day. The market research company then analysed this data and used it to produce a table which showed how much per kilometre people were prepared to pay to travel. They found significant differences in what people were prepared to pay for short haul and long haul flights. You will find the data for this table in **Survey\_exam.txt**.

You also have three sets of data that estimate the distances between airports:

- **Pilots\_exam.txt**
- **BAA\_exam.txt**
- **AirStuff\_exam.txt**

**Pilots\_exam.txt** was created by asking experienced pilots how far they thought each distance is.

**BAA\_exam.txt** was compiled from information provided by the British Airports Authority, who runs Heathrow Airport.

**AirStuff\_exam.txt** was compiled using an internet distance calculator on [www.airstuff.co.uk](http://www.airstuff.co.uk)

## Instructions to Candidates

All printouts **must** have a header and a footer. The header must contain the activity number. The footer must contain your name, candidate number and centre number.

Minimum font size of 10 should be used throughout.

All spreadsheet printouts should show gridlines and row and column headers.

For some of your spreadsheet printouts you may need to adjust column widths. To do this you will need to unprotect the worksheets. The password is *edexcel*.

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### Activity 1 – Understanding the situation (suggested time 20 minutes)

You should look at all the information available and make sure that you understand the situation.

On **one** sheet of A4 summarise the current situation.

- (a) List key facts relevant to the problem you have to solve. (11)
- (b) Outline the decisions you have to make. (2)

Note: Bullet pointed answers are acceptable.

**Save and print your work.**

(Total for Activity 1 = 13 marks)

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### Activity 2 – Sources of information (suggested time 20 minutes)

You have three data files for the distances between airports:

- **Pilots\_exam.txt**
- **BAA\_exam.txt**
- **AirStuff\_exam.txt**

On **one** sheet of A4:

- (a) State which data file is the **most** appropriate to use in the model and give reasons why you chose this one rather than the others. (5)

The **survey data** is given in the form of price per km.

- (b) State any concerns you have about the accuracy of the data. (4)

You are going to use a model to set prices.

- (c) List the costs that should be taken into account in the model. (4)

**Save and print your work.**

(Total for Activity 2 = 13 marks)

### Activity 3 – Computer modelling (suggested time 50 minutes)

Open the spreadsheet model and familiarise yourself with it.

The model is stored as **Airline\_exam.xls**

You should ensure that each printout is on **one** sheet of A4 only.

#### (a) Importing Data

- Create and name appropriately a worksheet to hold the imported data from **Survey\_exam.txt**
- Import data from the text file into your newly-created worksheet
- Print off rows 1-20 of this worksheet showing **data**. Remember to show gridlines and row and column headers
- Create and name appropriately a worksheet to hold the imported distance data from the file you chose in Activity 2
- Import data from the text file into your newly-created worksheet
- Print off this worksheet showing **data**. Remember to show gridlines and row and column headers.

(6)

#### (b) Passengers

- Use a formula in cell A7 of the 'Passengers' worksheet to copy information from the appropriate newly-created worksheet
- Replicate cell A7 into the range of cells A7:C108
- Print off columns A-C and rows 7-18 of the 'Passengers' worksheet showing **formulae**.

(2)

#### (c) Distances

- Use a formula in cell A6 of the 'Distances' worksheet to copy information from the appropriate newly-created worksheet
- Replicate cell A6 into the range of cells A6:G12
- Print off columns A-C and rows 6-12 of the 'Distances' worksheet showing **formulae**.

(2)

#### (d) Fuel

The current cost of A1 Jet Fuel is 87p per litre.

- In cell C6 of the 'Fuel' worksheet enter the current price of fuel
- In cell G8 of the 'Fuel' worksheet enter a formula to calculate the fuel cost for the London – Madrid flight
- Replicate this formula down to cell G17
- Print off columns A-G and rows 6-17 of the 'Fuel' worksheet showing **formulae**.

(5)

(e) **Staff**

- In cell F8 of the 'Staff' worksheet enter a formula to calculate the cost/km of a pilot
- Replicate this formula down to cell F12
- Print off columns E-F and rows 7-12 of the 'Staff' worksheet showing **formulae**.

(3)

(f) **Weight**

- In cell H8 of the 'Weight' worksheet enter a formula to calculate the total weight of the London – Madrid flight (excluding fuel)
- Replicate this formula down to cell H17
- Print off columns G-H and rows 7-17 of the 'Weight' worksheet showing **formulae**.

(3)

(g) **Cost Revenue**

- In cell M8 of the 'CostRevenue' worksheet enter a formula to calculate the profit for the London – Madrid flight
- Replicate this formula down to cell M17
- In cell N8 enter a formula to calculate the weekly profit for that flight. Ensure that the formula can be replicated into the cells below
- Replicate the formula down to N17
- Enter a formula into cell N18 to calculate the total weekly profit
- Print off columns M-N and rows 7-18 of the 'CostRevenue' worksheet showing **formulae**
- Use the model by entering in cells E8:E17 suggested ticket prices to maximise the profits of Lyonair for the routes displayed
- With your solution showing print off the 'CostRevenue' worksheet showing data.

(14)

(h) **Printouts**

- Collect all of your printouts together, ensure you have printed them correctly and that they are in the order you have been asked to print them.

(7)

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**(Total for Activity 3 = 42 marks)**

**\*Activity 4 – Recommendations (suggested time 35 minutes)**

Write a report for the management of Lyonair, recommending ticket prices for all of their routes.

The report should include:

- a suitable title
- an introduction explaining what the report is about
- the recommended prices
- a justification of why you made these recommendations
- factors that might impact on the profitability of individual flights
- at least one chart or graph
- a concluding statement.

Proof read your report.

Marks will be awarded for the Quality of your Written Communication (QWC).

**Save and print your work.**

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**(Total for Activity 4 = 15 marks)**

**Activity 5 – Evaluation (suggested time 10 minutes)**

Write an evaluation of the model considering:

- how well you thought it performed
- what else you would like it to do and why this would help
- how you would implement any of your improvements.

**Save and print your work.**

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**(Total for Activity 5 = 5 marks)**

**Standard Ways of Working**

**All printouts must contain the activity number, your name, candidate number and centre number.**

**Pages must be securely fastened to the cover sheet and in the correct order.**

**Minimum font size of 10 should be used for all word processed documents.**

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**(Standard Ways of Working = 2 marks)**

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**TOTAL FOR PAPER = 90 MARKS**

Write your name here

Surname

Other names

Centre Number

Candidate Number

**Edexcel GCE**

**Applied Information and  
Communication Technology**  
**Unit 3: The Knowledge Worker**

**COVER SHEET**

10–14 January 2011

Paper Reference

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**You do not need any other materials.**

Total Marks

**Instructions**

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Punch a hole in the top left corner of each printout.
- Ensure your printouts are in the correct order and attach them to Page 2 of this cover sheet using a treasury tag.

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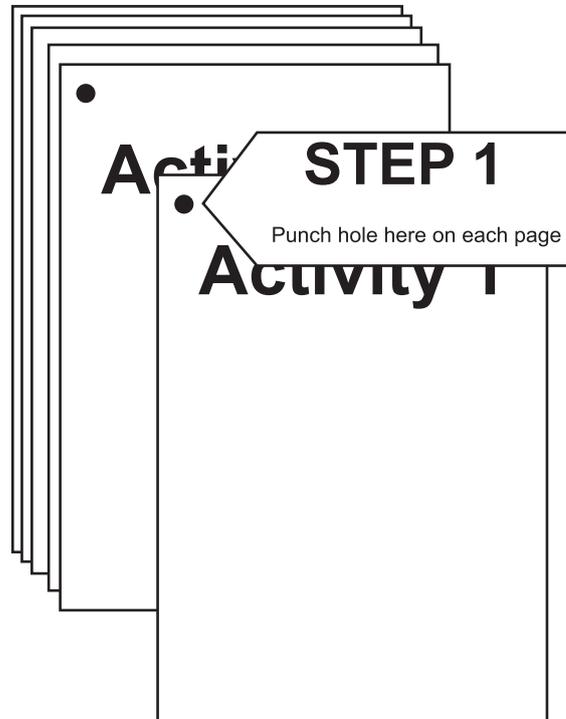
6/6/6/3



Turn over ►

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Put 'treasury tag'  
through this hole



**STEP 2** Arrange your pages in this order, face up.

Activity 1  
Activity 2  
Activity 3  
Activity 4  
Activity 5

**STEP 3** Put a 'treasury tag' through all  
your pages

**STEP 4 (last)**





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