

Paper Reference(s)

6953/01

Edexcel GCE

Applied Information and Communication Technology

Unit 3: The Knowledge Worker

12–16 January 2009

Time: 2 hours 30 minutes

Materials required for examination

Short treasury tag
Recipe_exam.txt
StevesLedger_exam.doc
StevesLedger_exam.pdf
SurveyStatistics_exam.txt
LauraElle_exam.xls

Items included with question papers

Cover sheet

Instructions to Candidates

Complete your candidate details on the cover sheet provided.

At the end of the examination use a treasury tag to attach your printouts to Page 2 of the cover sheet in the correct order.

Information for Candidates

There are **five** activities in this examination totalling **88** marks. **2** further marks are allocated to standard ways of working giving a paper total of **90** marks.

The marks for parts of the activities are shown in round brackets: e.g. **(10)**.

There are suggested timings against each activity: e.g. **(15 minutes)**.

Advice to Candidates

Read the Scenario carefully as it contains additional information.

Work through the activities in order.

Attempt **ALL** activities.

Label your printouts clearly as instructed.

Printing must be undertaken within the examination time.

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Turn over

LAURA ELLE Range of Perfumes

Laura Lewis and Steven Gee met whilst employed by a clinical research organisation in Bracknell. The basis for their business partnership happened largely by accident. Steven was working on the development of a new allergy tablet. He was carrying out an experiment when Laura, from marketing, walked past and complimented him on his aftershave. Steven was quite surprised by this as he did not use aftershave and so he called her back. After a while they realised that the aroma was coming from a test tube containing a mixture of chemicals.

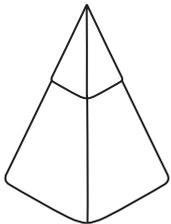
Laura was quick to see the possibility of marketing the mixture as a perfume. She persuaded Steven that this was a good idea and asked him to conduct further experiments. Steven created a laboratory in his garage and the pair bought the chemicals between them. Over the next few weeks Steven experimented with the 12 chemicals in the original mix with varying amounts of water. In the end he came up with 11 different recipes for perfumes. Laura then developed their names and produced descriptions for marketing purposes.

The 11 perfumes were named



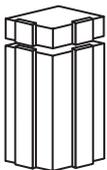
Midnight Flight

Hints of nutmeg, suede, black pepper, sandalwood, pimento, musk, and cedarwood, enhances a romantic evening.



Aftermath

A delicate mixture of citrus, pineapple, and woody notes, blended with the scent of ocean air, ideal for casual use.



Mirepoix

Light floral tones with a hint of spice, for the daytime use of the business woman.



Joix

A light mixture of fruit and floral essences, for the daytime use of the young and the young at heart.



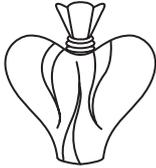
Sabre

A soft, rich floral, womanly and elegant fragrance for the woman who wants to be taken seriously.



Clubbin

A sharp and sweet fragrance for the woman who wants to be noticed.



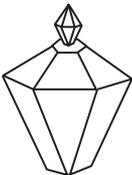
Opus

Hints of gardenia, tonka bean, bergamot, vanilla, sandalwood, jasmine, rose, amber, muguet and mandarin, for evening use.



Gorgeous

A fragrance mixture of jasmine, vanilla and pear, for general use.



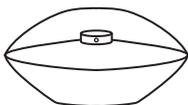
Crazy Knights

A blend of jasmine, rose, vetiver, musk, lemon and freesia, for a hectic evening out.



Lotus Leaves

A mixture of floral bergamot, orange blossom, jasmine, lily of the valley, honeysuckle, vanilla, sandalwood, amber and moss fragrances, for casual use.



Crystal Web

Hints of jasmine, apricot, chamomile and peach, a delicate and flowery fragrance ideal for evening use.

Laura then approached a large department store chain which agreed to stock the Laura Elle range of perfumes. Encouraged by this Laura and Steven are now preparing for larger scale production. For each perfume they have designed a different 30ml bottle. A glass manufacturer has agreed to supply these for 80p per bottle.

Steven and Laura now need to set a wholesale price for each product. Laura has started to do this and has partially completed a model to help her. As the start of production gets closer she is becoming increasingly involved with marketing issues and so does not have the time to complete the model. She has employed you to complete the model and to advise her on how much to charge the department store chain for each product.

Steven is concentrating on production. He believes that you can advise him on the amount of each ingredient that should be bought and the amount of each perfume that should be produced.

(Source artwork: Michelle Goates, 2007)

Description of the model

The partially completed model allows you to experiment with different wholesale prices to see which combination will give you the greatest profit.

Worksheet	Description
Summary	When it is complete the 'Summary' worksheet will be where the suggested wholesale prices for each product will be entered. There is an area on the worksheet where the total revenue, costs and profit are displayed.
Recipe	This worksheet will contain the amount (in ml) of each of the ingredients needed to create 1 litre of each of the perfumes. At present this information is confidential and Steven will need to provide you with it before you can use the model.
Ingredient Requirements	This worksheet will predict how much of each ingredient is required for the year. It will be broken down into the requirements for each product and a total can be calculated.
Ingredient Costs	This worksheet will contain the cost price of each ingredient. It will calculate the amount and cost of each ingredient required.
Sales	This worksheet will calculate the number of batches each branch of the department store chain will require depending on the wholesale prices that you have set.
Survey Statistics	This worksheet will contain analysed results from a survey undertaken by the department store chain. It will be used to predict the number of batches each store will sell.

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 to advise upon how much to charge the department store chain for each bottle of perfume (wholesale price). The perfumes will be sold to the department store chain in batches of 100. The department store chain will add 2% onto the wholesale price in order to fix the price at which the perfume is sold (retail price). You must also advise Steven on the amount of each ingredient that should be bought and the amount of each perfume that should be produced over the year.

The Data

Steven has produced recipes for each of the perfumes and has given you the amount of each of the 13 ingredients (including water) required to make 1 litre of each perfume. He has sent this to you in a comma delimited text file called "**Recipe_exam.txt**". The measurements are in litres.

The cost of each of the ingredients has been identified. The ingredients can be bought in 100ml, 500ml or 1 litre bottles. The prices for these are held in a word document called "**StevesLedger_exam.doc**". There is also a pdf version called "**StevesLedger_exam.pdf**". A continuous supply of water is available.

The department store chain has a large number of stores around the country. These stores vary in size and are rated according to their turnover. A rating of **one** is equivalent to the turnover of one of their smallest stores. A store that is rated at **two** would have approximately twice the turnover of a store rated at **one**. Laura has asked for these store ratings and has incorporated them into the model (The rating column on the 'Sales' worksheet).

Over the previous year the department store chain has been running trials of the Laura Elle perfumes. They opened a stall at the entrance to two of their stores in the south east of England (Lakeside and Hatfield). Almost 10000 people were invited to test samples of the perfumes and to answer a few questions. The results to the marketing department for analysis. This analysis has produced figures which predict the number of batches of each perfume they would be able to sell at various prices in a store rated at **one**. These figures have been sent to you in a comma delimited text file called "**SurveyStatistics_exam.txt**".

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*.

Activity 1 – Understanding the situation (suggested time 15 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
- Outline the decisions you have to make
- State any assumptions you are making.

Save and print.

Note: Answers using bullet points are acceptable.

(Total 13 marks)

Activity 2 – Sources of information (suggested time 15 minutes)

In the section headed “The Data” four sources of information relevant to the model are described. Each one will be used in the model.

Analyse these sources of information.

On **one** sheet of A4:

- List any factors related to the sources of information that you think would be relevant to the accuracy of the model.

Save and print.

(Total 15 marks)

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Activity 3 – Computer modelling (suggested time 50 minutes)

Open the spreadsheet model.

The model is stored as **LauraElle_exam.xls**.

- Open the spreadsheet model and familiarise yourself with it.

Importing Data

- Insert a new worksheet, rename it Survey Data and import **SurveyStatistics_exam.txt** into it.
- On **one** sheet of A4, print off this worksheet showing the data. Remember to show gridlines and row and column headers.
- Insert a new worksheet, rename it Recipe Data and import **Recipe_exam.txt** into it.
- On **one** sheet of A4, print off this worksheet showing the data. Remember to show gridlines and row and column headers.

Survey Statistics

- Using the data in your newly created ‘Survey Data’ worksheet enter formulae into cells A4:L29 of the ‘Survey Statistics’ worksheet to read the data from your ‘Survey Data’ worksheet.
- On **one** sheet of A4 print off only Columns A–D and rows 3–9 of the ‘Survey Statistics’ worksheet showing formulae. Remember to show gridlines and row and column headers.

Sales

- Enter a suitable formula into cell C41 of the ‘Sales’ worksheet.
- Replicate this formula along to cell M41.
- On **one** sheet of A4 print off Columns C–H row 41 only of the Sales worksheet showing formulae. Remember to show gridlines and row and column headers.

Ingredient Costs

- Using the information from **StevesLedger_exam.doc**, enter the costs for each ingredient into cells B4:D15 of the ‘Ingredient Costs’ worksheet.
- Enter a suitable formula into cell I17 of the ‘Ingredient Costs’ worksheet.
- On **one** sheet of A4 print off Columns A–D of the ‘Ingredient Costs’ worksheet showing data. Remember to show gridlines and row and column headers.
- On **one** sheet of A4 print off row 17, Columns G–I, of the ‘Ingredient Costs’ worksheet showing formulae. Remember to show gridlines and row and column headers.

Ingredient Requirements

- Enter a suitable formula into cell M4 of the ‘Ingredient Requirements’ worksheet to calculate the total requirement for Ingredient 1.
- Replicate this formula down to cell M16.
- On **one** sheet of A4 print off Column M of the ‘Ingredient Requirements’ worksheet showing formulae. Remember to show gridlines and row and column headers.

Recipe

- Using the data in your newly created ‘Recipe Data’ worksheet enter formulae into cells B4:L16 of the ‘Recipe’ worksheet to read the data from your ‘Recipe Data’ worksheet.
- On **one** sheet of A4 print off only Columns A–D and rows 3–9 of the ‘Recipe’ worksheet showing formulae. Remember to show gridlines and row and column headers.

Summary

- Enter a suitable formula into cell B9 of the ‘Summary’ worksheet to calculate the cost of the bottles for the Midnight Flight perfume.
- Replicate the formula to cell L9 of the ‘Summary’ worksheet.
- Enter a suitable formula into cell B11 of the ‘Summary’ worksheet to calculate the total revenue.
- Enter a suitable formula into cell B12 of the ‘Summary’ worksheet to calculate the total costs.
- Enter a suitable formula into cell B13 of the ‘Summary’ worksheet to calculate the profit.
- On **one** sheet of A4 print off Columns A–D of the ‘Summary’ worksheet showing formulae.

Use the model to decide upon suitable selling prices for each of the 11 perfumes.

With your proposed solution displayed:

- On **one** sheet of A4 print off Columns A–D of the ‘Summary’ worksheet showing data.

(Total 35 marks)

Activity 4 – Recommendations (suggested time 20 minutes)

Write a report for the management of Laura Elle, recommending wholesale prices for your perfumes, the amount of each ingredient required and the amount of each perfume to produce.

The report should include:

- the decisions you came to
- an explanation of why you made these decisions
- any other factors that management may need to take into account.

Use graphical information as well as textual information in your report.

Save and print.

(Total 18 marks)

Activity 5 – Evaluation (suggested time 10 minutes)

Write an evaluation considering:

- how well the spreadsheet model performed
- what else you would like it to do and why this would help
- what other data it may need and how you would collect it.

Save and print.

(Total 7 marks)

(Standard ways of working: 2 marks)
TOTAL FOR PAPER: 90 MARKS

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