London Examinations IGCSE

Information and Communication Technology

Paper 3 Case Study and Set Tasks

May 2006 and November 2006

Instructions to Candidates

1. All of the tasks should be attempted.
2. Work submitted must be your own and must be independent from that of other candidates. Sharing the work for any task may result in all of your work being rejected.
3. The time allowed for each task is that set by your teacher.
4. The deadline date for each task is that set by your teacher. Time allowances and deadlines will reflect the need for the centre to submit the work to London Examinations by the required date.
5. There are no limitations on the hardware or software that you may use.
6. All material submitted as evidence for a task must be clearly labelled with the Candidate Name and Candidate Number and the task identification. e.g. Task 1(a), Task 1(b).
7. Only work which is specified in the set tasks should be submitted.

Four marks will be awarded for full compliance with **instructions 6 and 7**.

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INTERNATIONAL

CASE STUDY

The company *Hoarding-Ads* owns large advertising boards ("hoardings") throughout the country and sells advertising space on them. A large advertisement is made up of a number of rectangular sheets of paper, all of the same standard size. Each sheet of paper has part of the advertisement printed on it and the sheets are pasted onto the hoarding to form the complete advertisement.

Advertising space on a hoarding is sold by size. This is measured by the number of sheets of paper which are used to cover the hoarding. This can be 6, 16, 32, 48 or 64 sheets of paper. *Hoarding-Ads* only sells space for complete hoardings.

Prices depend on the location of the hoarding, as well as on the number of sheets of paper which make up the advertisement. There are 4 price bands:

Location	Price band	Price (per sheet per month)
city centre	band 1	£3.50
large town centre	band 2	80% of the band 1 price
small town centre	band 3	60% of the band 1 price
rural location	band 4	40% of the band 1 price

Hoarding-Ads uses a spreadsheet and a database to manage its sales of advertising space.

At present, customers contact *Hoarding-Ads* by using a free telephone number, 0800 12345678, or by post. The owners of *Hoarding-Ads* have recently bought the domain name of hoarding-ads.com on the Internet, and will soon be creating a web site so that customers can order advertising space online.

The web site
Tasks 1(a), 1(b), 1(c) and 1(d) relate to this section.

The web site will be hosted by an Internet Service Provider that provides the following facilities:

- storage space for a web site
- access to script libraries for interactive functions such as form filling
- mailboxes for five e-mail addresses. These take the form of:
    xxx@hoarding-ads.com e.g. johnsmith@hoarding-ads.com
    or xxx.xxx@hoarding-ads.com e.g. john.smith@hoarding-ads.com

The spreadsheet
Hoarding-Ads uses a spreadsheet to calculate prices and to produce invoices for its customers. The spreadsheet consists of three related sheets: Sheet 1, Sheet 2 and Sheet 3.

Sheet 1
Task 1(e) is related to this section.

Sheet 1 is used to calculate the price for buying advertising space on individual hoardings.

Sheet 1 uses a LOOKUP table to determine the cost of any size of hoarding in any price band. The LOOKUP table has one row for each hoarding size and one row showing the price for a single sheet for one month. All the table cells are calculated using the base price of £3.50 – the price of a single sheet in price band 1, for one month.

Sheet 1 has cells which ask for:

- the size of the hoarding required
- the price band of the hoarding
- the length of time the hoarding is required for
- the number of hoardings of this kind which are required

The total cost is worked out using the LOOKUP table, the number of hoardings, and the number of months for which the hoarding is required.

Information from Sheet 1 is formatted as an order line ready for transfer to Sheet 2. An example of an order line is: ten, 6-sheet hoardings, in band 3, for 2 months.

Sheet 2 and Sheet 3
Tasks 1(f) and 1(g) are related to this section.

Sheet 2 is used to assemble orders; it uses information taken from Sheet 1. Customers may want to buy space on several hoardings of different sizes, in different price bands and for different numbers of months. Sheet 2 has space for up to ten order lines making up a purchase order, and it calculates a total cost to the customer for that order.

Sheet 3 is used to generate customer invoices; it uses information taken from Sheet 2. The invoice contains information for each order line. The invoice also shows the contact details of *Hoarding-Ads*, the date of issue of the invoice and the date for payment (which is four weeks from the date of issue of the invoice). Invoice numbers are generated from the system date and time. They occupy two adjacent cells and have the format:
    YYMMDD hhmm, where YY = year, MM = month, DD = day, hh = hour and mm = minute.

The database
Task 2 is related to this section.

The database consists of three tables: CUSTOMER, HOARDING, and SALE.

The CUSTOMER table uses customer ID as its key field and contains details such as: customer name, address, telephone number, e-mail address, and credit rating.

The HOARDING table uses hoarding ID as its key field and contains details of each hoarding such as: size, price band, availability, and address.

The availability field shows the date when the hoarding will next become available. New bookings can only start from that date.

The address field contains the postal code of the nearest building. Postal codes in the country have the format LLDD DLL where L is a letter and D is a digit. Not all the characters in the first half of the postal code need be used e.g. N7 9ED and NG19 0FX are both valid postal codes.

The SALE table uses invoice number as its key field and contains customer ID, hoarding ID, and payment.

The invoice number is taken from Sheet 3 of the spreadsheet.

The payment field is a tick box to show whether or not the invoice has been paid.

TASKS

Task 1

The owners of *Hoarding-Ads* want the hoarding-ads.com web site to contain the following pages:

- a home page
- a "how to contact us" page
- an interactive page for buying advertising space
- a set of four information pages giving details about each of the four price bands and showing examples of advertising hoardings

It must be possible to view each page as a single 800×600 pixel screen.

(a) Sketch designs for the home page, the "how to contact us" page, and **one** of the information pages. In the sketches, headings should be given but areas of descriptive text may be shown as blocks. The full text of the blocks should be printed on the reverse of the design sheets. Outline drawings may be used to indicate any graphical components.

Each of the three screen designs must be on a single sheet of A4 paper.

(10)

(b) Make and print the three pages.

Each page must be on a single sheet of A4 paper. Any changes from the designs in Task 1(a) must be clearly indicated.

(3)

(c) The web site has an interactive page for buying advertising space. The page needs to contain a user-friendly form with space for customers to make a ten-line order.

Make and print a suitable page. Annotate the printout to explain the user-friendly features.

(3)

(d) If your centre has web-hosting facilities, customise a suitable library script so that the order will be sent to *Hoarding-Ads*. If your centre does not have web-hosting facilities, customise a library script to send the order as a suitable file to a designated folder.

Print the original library script and your customised version. Annotate your customised version to show the changes you have made.

(3)

(e) Design Sheet 1 of the spreadsheet. Annotate the design to show where functions, formulae or other special features will be used. Functions and formulae do not need to be written out in full but the annotation must explain their purpose.

The design must be on a single sheet of A4 paper.

(5)

(f) Design Sheet 2 and Sheet 3 of the spreadsheet. Data transfer from Sheet 2 to Sheet 3 must be automatic. Data transfer from Sheet 1 to Sheet 2 may be done using copy and paste, but should be made easy for the user to do. Annotate the designs to show where functions, formulae or other special features will be used. Functions and formulae do not need to be written out in full but the annotation must explain their purpose.

Each of the two Sheet designs must be on a single sheet of A4 paper.

(5)

(g) Make Sheet 1, Sheet 2 and Sheet 3.

Use the Sheets to process the following customer order and to produce an invoice.

- ten, 6-sheet hoardings in price band 1 for 2 months
- six, 16-sheet hoardings in price band 1 for 2 months
- three, 48-sheet hoardings in price band 2 for 3 months
- five, 48-sheet hoardings in price band 3 for 3 months
- three, 64-sheet hoardings in price band 4 for 1 month

Print Sheet 1, showing the first entry. Print Sheet 2 and Sheet 3, showing the completed order and invoice. Any changes from the designs in Task 1(e) and Task 1(f) must be clearly indicated.

(9)

(Total 38 marks)

Task 2

(a) The database holds details of customers, hoardings, and sales. Sketch designs for a screen to input customer details and a screen to input hoarding details. The screens should be designed to be user-friendly. Annotate your designs to explain your choice of:

- field names, data types, and sizes
- validation checks
- user-friendly features

Each of the two screen designs must be on a single sheet of A4 paper.

(10)

(b) Using your designs from Task 2(a) above, build a database for this application.

Make printouts of the CUSTOMER and HOARDING tables. Show the following:

- fields with their data types and sizes
- any formulae, functions, validation or other operations associated with the fields

Any changes from the designs in Task 2(a) must be clearly indicated.

(7)

(c) Enter details for ten customers and thirty hoardings. You should make sure that:

- the orders contain all of the four price bands
- the orders contain a variety of hoarding sizes
- five of the customers already own advertising space; the other five do not
- three of the customers buy space on several hoardings
- some of the sales will expire within three months

Make a search for hoardings which will become available in the next three months.

Print out the following items as evidence:

(i) a report showing the customer details, sorted into key field order
(ii) a report showing the hoarding details, sorted by band and size
(iii) the customer data entry screen designed in Task 2(a)
(iv) the hoarding data entry screen designed in Task 2(a)
(v) a screen showing the links between the three tables
(vi) a screen showing the search conditions
(vii)a screen showing the search results

Any changes from the design in Task 2(a) must be clearly indicated.

(9)

(d) Add a field to the HOARDING table which displays the number of days left until the hoarding becomes available. The field must use a calculation, script, or macro (depending on your software) to fill in the value.

Print out the following items as evidence:

(i) a screen showing the calculation, script, or macro; annotated to show how it works
(ii) a report showing the hoarding details, sorted by days remaining

(4)

(e) *Hoarding-Ads* wants to use a mail merge to send a letter to all its customers, telling them that there is a special offer of 10% discount on advertising space purchased in the next month. Sketch a design of the template for this letter.

Make the letter and print it out.

Submit the following items as evidence:

(i) the sketch of the letter template
(ii) a printout of the letter template for the mail merge
(iii) **one** completed letter and envelope. The envelope may be printed as a sheet of A4 paper.
(iv) a printout of a screen to show that the letter template is linked to the database

(8)

(Total 38 marks)

Task 1 and Task 2

Presentation and relevance of submitted material, as specified in the 'Instructions to Candidates' on the front cover.

(Total 4 marks)

TOTAL FOR PAPER: 80 MARKS

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