

**ADVANCED SUBSIDIARY GCE
INFORMATION AND COMMUNICATION
TECHNOLOGY**

Structured ICT Tasks

G062

MAY 2011

Issued September 2010

Maximum Mark 80



INSTRUCTIONS TO CANDIDATES

- You should attempt all tasks, working independently from other candidates.
- There are no time limitations on the tasks other than that they must be submitted by the appropriate internal deadline set by the Candidate's Centre. This deadline will reflect the need for the Centre to complete marking of the tasks and submission of marks to OCR by 15th May 2011.
- There are no restrictions on computing facilities, hardware or software that may be used.
- All data files required for these tasks can be downloaded from www.ocr.org.uk/qualifications/asa_levelgceforfirstteachingin2011/ict/documents.html#Pre-release_materials
- All work produced for the tasks must be kept secure within Centres and not published or distributed externally in any form.
- **Once your tasks have been marked by the Centre, they cannot be re-submitted for improvements.**

INFORMATION FOR CANDIDATES

- **Candidates are reminded of the need for good English and clear presentation in their answers. They will be expected to have used software tools, such as spellcheckers, to help achieve this.**

Notice to candidates

- 1 The work which you submit for assessment must be your own.
However, you may:
 - (a) quote from books or any other sources: if you do, you must state which ones you have used;
 - (b) receive any guidance from someone other than your teacher: if so you must tell your teacher, who will record the nature of the assistance given to you.
- 2 If you copy from someone else or allow another candidate to copy from you, or if you cheat in any other way, **you may be disqualified from at least the subject concerned.**
- 3 When you hand in your coursework for assessment, you will be required to sign that you have understood and followed the coursework and portfolio requirements for the subject.

ALWAYS REMEMBER – YOUR WORK MUST BE YOUR OWN

- This document consists of 12 pages. Any blank pages are indicated.

Task 1 [Total 8 marks]

Dulton School has decided that it needs a new school logo in 2011 to celebrate its 100th year. The head teacher, Mrs Wilson, has organised a competition to select the best logo and wants the logo to match one of the themes of science, technology or the future. Mrs Wilson needs to have a unique logo and does not want to use an image from the internet, clipart or an image library.

Mrs Wilson has provided a list of requirements for the completed logo:

- to have a logo created from scratch
- to have a logo which includes the school name
- to have a logo which matches one of the themes
- to be a single layer
- to be a pixel size of width 140 × height 125.

The competition is in two stages, design and implementation:

Design – A hand drawn annotated design of the logo is required. The logo design needs to be scanned and the file size needs to be no more than 250kb. The logo design entries will then be scanned and sent electronically to Mrs Wilson and the members of the judging panel. Mrs Wilson's email address is clwilson@dulton.biz and the judges are Mr Richard Groves rgroves@dulton.biz, Mr Tariq Ahmed tahmed@dulton.biz and Ms Razi Omar romar@dulton.biz. The judges need to be set up as an appropriately named distribution list to make it easier to email as a group. The completed scanned logo needs to be emailed to Mrs Wilson and carbon copied to the judges.

- (a) (i) Produce a hand drawn design of the logo. Include all specification details so that a third party could recreate the logo using computer software. [2]
- (ii) Using a scanner and computer software create an electronic file of the hand drawn design in a format suitable for transferring between different graphics packages. Produce annotated evidence to show the scanned design and the file created including its size and type. [1]
- (iii) Using computer software produce annotated evidence to show how the judges' distribution list was created. [1]
- (iv) Using computer software produce annotated evidence to show the email that is to be sent to Mrs Wilson and to the judges. [1]

Implementation – The logo needs to be created using computer software.

- (b) Using a computer and suitable software recreate the hand drawn logo from (a)(i) and produce annotated evidence to show how the completed logo meets Mrs Wilson's requirements. [3]

Task 2 [Total 8 marks]

Dulton School produce a parents' newsletter on one side of A4 paper. Mr Ahmed will be responsible for the production of the next newsletter although the content will be provided by other people in the school. The newsletter is available for parents in electronic and paper format.

Mr Ahmed is producing a plan for the layout and content of the next newsletter. The newsletter articles and his requirements are listed below:

- Newsletter title: Parent Newsletter
- Issue number: Issue 48
- The school name, address and contact details displayed at the top of the newsletter.
 - Address: Truwell Lane, Dulton, DX3 9AY
 - Contact details:
 - Tel: 07778 778667
 - Fax: 07778 778666
 - Email: admin@dulton.biz
 - Web: www.dulton.biz
- The result of the new school logo competition – your logo produced in Task 1 displayed with a message from the head teacher explaining why it was selected as the winning entry.
- A written commentary from a student about a recent school sporting event. The article will have a suitable title. The commentary will be typed into two text boxes or two frames which need to be linked so that the text flows automatically from the first into the other one. A suitable image will be placed between the two text boxes or frames.
- Eye catching information about some exciting events in the months ahead
 - the school production of 'Grease' on 3rd, 4th, 5th May 2011
 - the school ski trip to Austria in February 2011.
- Some information to parents about internet safety. A suitable image will be placed behind some of the text of this article so that the text is still visible.

(a) Using a computer and suitable software, produce the newsletter to Mr Ahmed's plan and requirements. Print the completed newsletter. **[3]**

(b) Use annotated evidence to show how you made the sporting event commentary flow between the two text boxes or two frames. **[1]**

(c) Use annotated evidence to show how the image was set behind the internet safety text so that the text is still visible. **[1]**

The head teacher requires a printed personalised Newsletter for parents. This is to be completed using mail merge. The parent's personalised details are to appear at the top of the Newsletter.

(d) Using a computer and suitable software, produce personalised copies of the Parent Newsletter using all the fields in the data file *Parent.txt*

(i) Print annotated evidence of the merge fields used to personalise the Parent Newsletter. **[1]**

(ii) Print annotated evidence to show how Mr Ahmed could select the newsletter for all parents who have the surname Penny. Print the Parent Newsletter for parents who have the surname Penny. **[2]**

Task 3 [Total 17 marks]

Mrs Lee is responsible for the school website. She would like each page to have a suitable title and the new logo (from Task 1) to be displayed in the top left corner of each page. Mrs Lee wants the website to be consistent with the style sheet settings that the school uses for its documentation. The school uses Tahoma font, size 13, black for the main text and Bookman Old Style, size 15, black text for the headings.

Mrs Lee would like the web style sheet to be applied by using Cascaded Style Sheet (CSS) and has produced the following set of requirements:

- *Home page* with
 - name of the school
 - address and contact details of the school (from Task 2)
 - name of the head teacher (from Task 1)
 - an image of the outside of the school
 - an image of the inside of the school
 - two quotes from satisfied parents who recommend the school
 - a link to the electronic version of the Parents Newsletter (from Task 2)
 - links to all the pages

- *Curriculum page* with
 - daily times of lessons
 - a list of different subjects available for study (at least 10 must be listed)
 - a quote from the head teacher about the recent examination results
 - an external link to the OCR qualifications website at www.ocr.org.uk
 - links to all the pages

- *Ticket Request page* for the school production of Grease with
 - information about the school production of Grease which will be performed each night at 7.30 p.m. on 3rd, 4th, 5th May 2011
 - a suitable image advertising the school production of Grease
 - type of tickets for adults, students/children and OAP
 - ticket price options: adults £8.00; students/children £6.00; and OAP £5.00
 - method of payment
 - links to all the pages
 - Information to be filled in:
 - performance date tickets are required for
 - title, forename and surname of person applying for tickets
 - email address of person applying for tickets
 - forename and surname of child at Dulton School
 - class child is in
 - number of tickets required for each type
 - a button that saves the information filled in and transfers the details that have been submitted so that they are displayed on a confirmation page

Files for each page must be stored in a separate folder for that page, except the home page.

- (a) Using a hand drawn diagram, design the structure of the website, showing how all the pages will link together, including external links. [2]
- (b) Produce the website and print evidence of the web pages you have created. [3]
- (c) Using screenshots, show annotated evidence of how you:
- created the link from the home page to the ticket request page
 - created the external link from the curriculum page to OCR. [2]
- (d) Show the file structure of your website. Produce screenshot evidence of the file names used and the folders where the files and images have been stored. [1]
- (e) Using screenshots, show annotated evidence of how the data entered onto the ticket request page is saved and displayed on the confirmation page. [3]

Mrs Lee is keen that the school website should function properly. She would therefore like to have a test plan produced.

- (f) Complete the test plan shown in Table 3.1. Each test must be for a different aspect of the website and must not test the same type of feature twice. Each test must be specific to this website. You must ensure that enough detail is given so that a third party can run the test and recognise whether the test outcome matches the expected result. [3]

	Item to test	How to test it	Expected result
Test 1			
Test 2			
Test 3			

Table 3.1

In the future, the school will want to create new pages for the website.

- (g) Produce user documentation to show how to:
- create a new Sports page and set the background colour of the new page
 - include text and an image on the new page
 - create a link to the new page from the other pages
 - use CSS to maintain consistency for all pages
 - amend the existing file structure to include the new page. [3]

Task 4 [Total 17 Marks]

Dulton School has a tuck shop which is organised by school students. Amy is in control of the tuck shop. The paper based system that is being used needs to be replaced by computer software. The tuck shop is open each day from Monday to Friday inclusive. Replacement stock items are purchased at the end of each day from local suppliers so that they are available immediately for the next day. Stock has to be purchased in packs although they are sold as individual units. The students who organise the tuck shop need a system to help control the stock levels and to provide accurate sales and profit information. Amy has created layouts of the three different worksheets (Master, Sales and Profit) which she needs to be linked within a single workbook for the task.

Table 4.1 shows the 'Master' list of the stock control system.

	A	B	C	D	E	F	G	H	I	J	K
1	Item code	Item	Category	Pack size	Pack cost	Unit cost	Unit sell	Unit profit	Stock (units)	Max stock (units)	Min stock (units)
2	1	Dark Choc bar	Snack bar	48	£ 12.00		£ 0.55		192		
3	2	Cola Lite	Drink	24	£ 3.60		£ 0.50		96		
4	3	Coconut bar	Snack bar	48	£ 12.00		£ 0.55		192		
5	4	Fruity chews	Candy	36	£ 5.40		£ 0.40		144		
6	5	Caramel bar	Snack bar	24	£ 6.00		£ 0.45		96		
7	6	Plain curls	Crisps	48	£ 12.00		£ 0.60		192		
8	7	Muesli bar	Biscuit	24	£ 4.80		£ 0.40		96		
9	8	Mineral water	Drink	24	£ 2.40		£ 0.35		96		
10	9	Cookies	Biscuit	24	£ 6.00		£ 0.65		96		
11	10	Cheese curls	Crisps	48	£ 9.60		£ 0.45		192		
12	11	Lite crisps	Crisps	48	£ 7.20		£ 0.40		192		
13	12	Apple juice	Drink	36	£ 7.20		£ 0.45		144		
14	13	Orange juice	Drink	36	£ 7.20		£ 0.45		144		
15	14	Milk Choc bar	Snack bar	48	£ 9.60		£ 0.55		192		
16	15	Lolly	Candy	36	£ 3.60		£ 0.20		144		
17											
18		Category	Max Packs	Min Packs							
19		Biscuit	4	2							
20		Candy	3	1							
21		Crisps	6	2							
22		Drink	5	2							
23		Snack bar	5	2							

Table 4.1

There is restricted storage space in the tuck shop so each item in each category has a maximum and minimum stock level. Amy would like the Unit cost, Unit profit, Max stock (units) and min stock (units) to be calculated using appropriate formulae or functions. The tuck shop has an existing level of stock which is shown in the column 'Stock (units)'. The worksheet needs to be named Master.

- (a) (i) Using a computer and suitable software complete the worksheet which is set out the same as and uses the data from Table 4.1. Print the completed Master worksheet on one side of A4 paper. Include row and column headings. **[1]**
- (ii) All calculations in the columns Unit cost, Unit profit, Max stock (units) and Min stock (units) must be accurate and automatic. Print annotated evidence of the formulae or functions you have used in these areas of the spreadsheet (including column and row headings e.g. A, B, C, 1, 2, 3 – if named cell ranges have been used they need to be clearly identified). **[2]**

Table 4.2 shows part of the layout for the 'Sales' worksheet. Amy would like the data in columns A to F to be linked to the Master worksheet using formulae or functions. The sales for Monday have been input. The data in columns H to M must be calculated using formulae or functions. All sales and orders related to each item on this worksheet are in single units.

Amy has provided a set of instructions for the calculations:

- 'Mon stock' is the stock units carried through from the Master list.
- 'Status' needs to indicate if there is sufficient stock. If the 'Stock left' is above the minimum stock level the 'Status' is OK, else it needs to display ORDER.
- If 'Status' is OK, then 'Units ordered' is zero. If Status is ORDER, then 'Units ordered' is the difference between the minimum and maximum stock level. For example if an item has a maximum stock of 7 packs and a minimum stock of 2 packs, the difference is 5 packs. Units ordered will be 5 packs multiplied by the number of units in each pack.
- 'Order value' is the purchase cost of the stock ordered.
- 'Tues stock' is the stock left added to the units ordered.
- The total daily profit and total daily order value is calculated at the end of the relevant column.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Item code	Item	Category	Unit sell	Unit profit	Mon stock	Mon sales	Mon profit	Stock left	Status	Units ordered	Order value	Tues stock
2	1	Dark Choc bar	Snack bar				32	£ -				£ -	
3	2	Cola Lite	Drink				25	£ -				£ -	
4	3	Coconut bar	Snack bar				18	£ -				£ -	
5	4	Fruity chews	Candy				26	£ -				£ -	
6	5	Caramel bar	Snack bar				18	£ -				£ -	
7	6	Plain curls	Crisps				40	£ -				£ -	
8	7	Muesli bar	Biscuit				22	£ -				£ -	
9	8	Mineral water	Drink				23	£ -				£ -	
10	9	Cookies	Biscuit				20	£ -				£ -	
11	10	Cheese curls	Crisps				25	£ -				£ -	
12	11	Lite crisps	Crisps				46	£ -				£ -	
13	12	Apple juice	Drink				30	£ -				£ -	
14	13	Orange juice	Drink				32	£ -				£ -	
15	14	Milk Choc bar	Snack bar				45	£ -				£ -	
16	15	Lolly	Candy				28	£ -				£ -	
17		Total						£ -				£ -	

Table 4.2

- (b) (i) Using a computer and suitable software complete the worksheet which is set out the same as and uses the data from Table 4.2. Print the completed Sales worksheet on one side of A4 paper. Include row and column headings. [2]
- (ii) All calculations must be accurate and automatic. Print annotated evidence of the formulae or functions you have used in columns A to M. (including column and row headings e.g. A, B, C, 1, 2, 3 – if named cell ranges have been used they need to be clearly identified). [3]

Amy requires that the Sales worksheet from Table 4.2 is extended to cover all the days of the week that they are open. She is aware that principles that were applied to columns G to M can be repeated across the worksheet and that the reference to each day in the heading needs changing for the system to make sense. Extend and complete the worksheet using the daily sales data file *Sales.txt*

- (c) Using a computer and suitable software complete and print on one side of A4 paper the Sales worksheet to show the data which relates to Friday only. Include the information in columns A to E and the data from 'Friday stock' through to the 'Order value'. Include row and column headings. [2]

Amy is aware that it is possible to have a visual indication on screen when something is incorrect. She would like to use this feature to show if there has been an error inputting daily sales. Amy would like a rule so that the input cell background changes to black with the input value in bold and yellow if the input value is higher than the stock available on any given day.

- (d) Print annotated evidence of the rule used in the cell which contains the Monday sales for Dark Choc bar to show how you have met Amy's requirements. [1]

She would also like to use a similar rule to show when items of stock need ordering in the 'Status' columns. When stock needs ordering, Amy would like the cell background to change to red with white text.

- (e) (i) Print annotated evidence of the rule used in the cell which contains the status of Cola Lite on Tuesday to show how you have met Amy's requirements. [1]
- (ii) Print annotated evidence of the status of all the items on Wednesday after the daily sales figures have been input. [1]

Table 4.3 shows the layout for the 'Profit' worksheet. Amy would like the daily Profit and Order value to be linked to the Sales worksheet using formulae or functions. The Profit/loss is the daily Profit less the daily Order value. She would also like to represent the daily Profit and Order value results as a line chart in the area indicated with the five days listed along the 'x' axis. She does not want to include the Total in the line chart.

	A	B	C	D	E	F	G	H	I	J	K	L
1	Summary of daily profit				Line Chart here							
2												
3		Profit	Order value	Profit/loss								
4	Monday											
5	Tuesday											
6	Wednesday											
7	Thursday											
8	Friday											
9	Total											
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Table 4.3

- (f) (i) Using a computer and suitable software complete the worksheet which is set out the same as Table 4.3. Print the completed Profit worksheet data for the week with the completed line chart on one side of A4 paper. Include row and column headings. [2]
- (ii) All calculations must be 100% accurate and automatic. Print annotated evidence of the formulae or functions you have used in the Profit worksheet. (including column and row headings e.g. A, B, C, 1, 2, 3 – if named cell ranges have been used they need to be clearly identified). [2]

Task 5 [Total 11 marks]

Miss Fisher, a history teacher, needs a presentation for an open evening. The presentation must last for 1 minute 20 seconds.

She needs to include the following features in the presentation:

- slide master(s), to achieve a consistent layout
- animation, which uses timings so text and images appear automatically
- effects on animations or transitions, to add interest to the presentation
- transitions, so that slides progress after a given time interval
- a loop, to restart the presentation from the beginning when it reaches the end.

- (a)** Using a computer and suitable software, produce the presentation (3 to 6 slides) to be used in the open evening. The presentation must include slide titles, text, images, appropriate use of colour and the new logo from Task 1.

Print the presentation and use annotation to show where the features are included in the presentation. **[3]**

- (b)** Produce help sheet(s) which could be used to show Miss Fisher how to create future presentations that include the same features. **[3]**

Miss Fisher wants to add sound, which consists of background music and a recorded voice over, to the presentation. She wants the completed sound file to make use of:

- fade in and fade out sections
- appropriate volume settings, so that the recorded voice over can be clearly heard.

The completed file is to play for 1 minute 20 seconds. The completed sound file needs to be saved in a suitable format to be played within the presentation.

- (c) (i)** Using a computer and suitable software, produce the completed sound file. Print annotated evidence to show how Miss Fisher's requirements for the sound file have been met. **[3]**

- (ii)** Add the completed sound file to the presentation. Print annotated evidence to show how Miss Fisher's requirements for the presentation have been met. **[2]**

Task 6 [Total 19 marks]

The school librarian, Mrs Reid needs to keep a record of the books in the library. The books may be out on loan to the students or on the shelves. At present she uses a paper based system which records the information for each book as shown below in Table 6.1.

Book title	Genre	ISBN	Reading age	Author	Quantity	
<i>Lost Treasures</i>	<i>Mystery</i>	<i>0-340-99651-7</i>	<i>12</i>	<i>R Green</i>	<i>4</i>	
<i>Loaned by:</i>						
Student	Class	Loan date	Due date	Return date	Fine	Copy
<i>Harry Smith</i>	<i>9F</i>	<i>12/11/2010</i>	<i>26/11/2010</i>	<i>29/11/2010</i>	<i>£0.20</i>	<i>1</i>
<i>Toni Penny</i>	<i>10R</i>	<i>12/11/2010</i>	<i>26/11/2010</i>	<i>24/11/2010</i>		<i>2</i>
<i>Lucy Harris</i>	<i>11M</i>	<i>05/01/2011</i>	<i>19/01/2011</i>	<i>01/02/2011</i>	<i>£1.80</i>	<i>3</i>
<i>Jahvid Luma</i>	<i>10S</i>	<i>07/03/2011</i>	<i>21/03/2011</i>	<i>25/03/2011</i>	<i>£0.80</i>	<i>2</i>
<i>Ross Dance</i>	<i>9N</i>	<i>07/03/2011</i>	<i>21/03/2011</i>	<i>21/03/2011</i>		<i>4</i>

Table 6.1

A book can be on loan for fourteen days. The due date is the Loan date plus fourteen days as shown in Table 6.1. If the Due date falls on a day when the school is closed (e.g. during a holiday period) then the Due date becomes the date that the school reopens. A fine of £0.20 per school day is charged to borrowers who return books after the Due date. If a book is returned more than fourteen school days after the Due date there is an additional £1.00 charge.

Examples:

- If a book is due back on Friday and is returned on the following Monday, the fine is £0.20.
- If a book is due back on Wednesday the week before half term and is returned on the Tuesday after half term, the fine is £0.80.

The library has a number of copies of some of the more popular books which is shown under the heading Quantity. The copy of the book on loan is shown under the heading Copy.

Mrs Reid knows that tables will be required to create an effective database and she wants the tables to be named the same as the data files (e.g. LOAN).

Mrs Reid requires a database system that will be able to:

- store the data in more than one table to ease maintenance
- provide a single data entry form for the loan and return of books which:
 - automatically calculates the due date of a given book
 - automatically calculates and displays any fines due
 - ensures only books not on loan can be borrowed
 - limits a borrower to two books on loan at any given period of time
- provide a second form which shows all the loans for all copies of a given book, which has the following:
 - book details
 - all the loan history
- display the following school details on both forms:
 - school logo (from Task 1)
 - school name, address and contact details (from Task 2)
- produce a printed list of books overdue for return on any given date input into the system by Mrs Reid
- produce a printed reminder with details of the book(s), relevant dates and any fines, for books that are overdue for return on any given date input into the system by Mrs Reid.

Using a computer and suitable software, create a database to meet the Mrs Reid's requirements, using the data files, *Book.txt*, *Copy.txt*, *Student.txt*, *Term date.txt* and *Loan.txt*. The data files as they stand are in appropriate to create an effective database. Mrs Reid has been informed that the database needs to be normalised and appropriate primary keys and foreign keys will need to be created for all tables.

- (a) Print evidence of field names, data types, primary and foreign keys used for each table. [2]
- (b) Print evidence of the entity relationship diagram created within the database software. [1]
- (c) Provide screenshot evidence of the data entry form for the loan and return of books. [1]
- (d) (i) Provide screenshot evidence of the data entry form you have created so that the details for all copies of the book *Lost Treasures* and all their loans are visible. [3]
- (ii) Print annotated evidence of how the loan and return data entry form confirms that only books not on loan can be borrowed. [3]
- (iii) Print annotated evidence of how the loan and return data entry form limits a borrower to two loan books at any given period of time. [2]
- (iv) Print annotated evidence of how the loan and return data entry form automatically calculates the fine. [3]
- (e) (i) Produce and print a list of the overdue books and the books due for return on 22/03/2011, including details of who has them on loan. The list should indicate how many days books are overdue on this date. The printed list must cover no more than one side of A4 paper. [2]
- (ii) Produce and print the reminders which would be issued on 22/03/2011. [2]

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