Centre No.						Paper Reference							Surname	Initial(s)
Candidate No.						4	3	8	5	/	2	H	Signature	

Paper Reference(s)

4385/2H

Examiner's use only

Team Leader's use only

London Examinations IGCSE

Information and Communication Technology

Paper 2H

Higher Tier

Friday 7 November 2008 – Morning

Time: 1 hour 30 minutes

Materials required for examination
Nil

Items included with question papers
Nil

Question Number	Leave Blank
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
Total	

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initial(s) and signature.
Check that you have the correct question paper.
Answer **ALL** the questions. Write your answers in the spaces provided in this question paper.
Do not use pencil. Use blue or black ink.

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 12 questions in this question paper. The total mark for this paper is 100.
There are 20 pages in this question paper. Any blank pages are indicated.

Advice to Candidates

You are reminded of the importance of clear English and careful presentation in your answers.
Include diagrams in your answers where these are helpful.

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Answer ALL questions

1. A mouse is an input device. It can be used to control a cursor on a computer screen.

(a) State **two** other input devices that might be used to control a cursor on a computer screen.

Device 1 .....

Device 2 .....

(2)

(b) A standard keyboard has keys which allow the letter and number keys to perform more than one function. For example, the **Shift** key allows the number keys to produce symbols, so that 5 gives %.

State **two** other keys which allow the letter and number keys to perform more than one function. State what the extra function is and give an example in each case.

Key 1 .....

Extra function .....

Example 1 .....

Key 2 .....

Extra function .....

Example 2 .....

(6) **Q1**

(Total 8 marks)

Leave blank

2. A school Examinations Officer is collecting information about IGCSE examination entries. Each subject teacher who wishes to enter pupils for IGCSE examinations must fill in a paper data collection form which includes spaces to enter information about the teacher, pupils, and subject.

(a) Draw a data collection form which would be suitable for this purpose.

(6)

(b) The Examinations Officer enters the collected data into a database. Some of the data is encoded. State **one** data item from your data collection form which would be suitable for encoding.

Give an example of a suitable code for this data item and explain how it works.

Data Item .....

Example .....

Explanation .....

.....

(3)

Q2

(Total 9 marks)

Leave blank

3. The Smith family has set up a wireless computer network inside their house. The network uses a combined router and wireless access point to connect to the Internet.

(a) Mr. and Mrs. Smith are worried that their children might gain access to unsuitable material over the Internet.

Explain **one** method which they could use to help to prevent such access.

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.....

(2)

(b) Julia Smith is fifteen years old and keeps her secret diary on her computer. She is worried that her younger brother might try to read it.

Explain **two** computer-based methods which she could use to try to prevent him from reading it.

Method 1

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.....

(2)

Method 2

.....

.....

(2)

(c) Mr. and Mrs. Smith notice that when all the family's computers are switched off, the router is still showing Internet traffic. State a possible reason for this and explain what they should do to prevent it.

Reason .....

Prevention .....

.....

(3)

Q3

(Total 9 marks)

Leave blank

4. A zoo has a children's area. Only 50 visitors are allowed inside the children's area at one time. There are turnstiles at the entrance and exit. A turnstile is a kind of gate which only allows one person at a time to pass through.

(a) The movement of a visitor through a turnstile is detected by a sensor.

Describe how this could be achieved.

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.....

(2)

(b) Digital signals are sent from the turnstiles to a microprocessor. State the processing which takes place when:

(i) The entrance turnstile sends a signal.

.....

.....

(1)

(ii) The exit turnstile sends a signal.

.....

.....

(1)

(c) There is an electronic display above the entrance turnstile which shows how many visitors are inside. State how the microprocessor decides which number to output to the electronic display.

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(2)

Leave blank

(d) The manager of the zoo wishes to know how popular the children's area is.

(i) State **two** data items which should be logged for this purpose.

Item 1 .....

Item 2 .....

(2)

(ii) State a suitable type of software for logging the data and give a reason for your choice.

Software type .....

Reason .....

.....

(2)

Q4

(Total 10 marks)

Leave blank

5. Lucy wishes to make a web site for her IGCSE ICT project. She has a choice of a commercial package for writing web sites, or a basic HTML package where she types in the code herself.

(a) In the context of an IGCSE ICT project, explain **three** advantages of a commercial package over a basic HTML package.

Advantage 1 .....

.....

Advantage 2 .....

.....

Advantage 3 .....

.....

(3)

(b) Lucy wishes to make a picture gallery in the web site. She uses a digital camera to take some 800 × 600 pixel pictures. She inserts them as jpg files and then drags the corners of each picture to fit it into a thumbnail-sized space.

When she has a gallery of 16 pictures, she loads the page into a browser and finds that it is very slow. Her teacher tells her that the problem is caused by the pictures.

Explain how Lucy could make the page load more quickly without altering its appearance.

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(3) **Q5**

(Total 6 marks)

Leave blank

6. Computers hold data as bits and bytes.

(a) (i) Explain what is meant by a bit.

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(2)

(ii) State what is meant by a byte.

.....

(1)

(iii) State what is meant by a kilobyte.

.....

(1)

(b) Data other than keyboard characters, e.g. sound, is also held as bits.

State **two** other data types that are held as bits.

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.....

(2)

(c) A character entered from a keyboard may be held as ASCII code. In ASCII code, each character is represented by a pattern of 8 bits. An alternative way of holding characters is to use Unicode.

(i) State how Unicode holds a single character.

.....

(1)

(ii) State the main advantage of Unicode over ASCII code.

.....

(1)

Q6

(Total 8 marks)

Leave blank

7. Three types of user interface are:

- graphical user interface
- command line interface
- menu driven interface.

(a) Explain the difference between a menu in a graphical user interface and a menu in a menu driven interface.

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(5)

(b) Some of the actions performed in a graphical user interface make use of a command line.

Describe an example of this.

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(2)

Q7

(Total 7 marks)

Leave blank

8. A car hire company keeps details of its cars in a database. Part of the database is shown in the table.

Registration	Make	Model	Engine size	Fuel type	Doors	Mileage	Colour
KF07WSR	ford	fiesta	1388	petrol	3	12232	red
GT57YTG	ford	mondeo	2495	petrol	5	8665	grn
GY56THJ	honda	civic	1339	hybrid	5	23745	blk
BR56JDF	vauxhall	vectra	1910	diesel	5	25569	blu

(a) When a new record is entered into the database, some fields are validated and others are verified. Using examples from the table, explain the difference between validating and verifying.

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(9)

Leave blank

(b) The database records are often amended.

(i) State which field will be amended most often.

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(1)

(ii) Give a reason for your choice.

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(1)

(iii) State whether that field should be validated or verified.

.....

(1)

Q8

(Total 12 marks)

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9. Mr. Brown is organising a family holiday in a foreign country. He uses the following Internet services to help him:

- e-mail
- search engine
- e-commerce site
- customer support site
- forums.

(a) Mr. Brown uses a forum to find other people's suggestions of what places to visit. State how Mr. Brown would use the other Internet services to help him to organise his holiday.

e-mail .....

.....

search engine .....

.....

e-commerce site .....

.....

customer support site .....

.....

(4)

(b) Apart from those listed in part (a), state **two** other Internet services which Mr. Brown could use to help him organise the holiday. Give an example of how Mr. Brown would use each service.

Service 1 .....

Example 1 .....

.....

Service 2 .....

Example 2 .....

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(4) **Q9**

(Total 8 marks)

Leave blank

10. A school has a local area network (LAN). The parts of the LAN are connected by copper cable. When a new classroom block was built in the school grounds, the Computing Department was asked to arrange for the new block to be connected to the LAN. The new block is 20 metres from the nearest point of the present LAN.

(a) Give **two** methods which could be used to connect the block to the present LAN.

Method 1 .....

Method 2 .....

(2)

(b) Choose the more suitable method from the two given in **part (a)**.

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Explain why it is more suitable than the other method.

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(4) **Q10**

(Total 6 marks)

Leave blank

11. John has developed a web site for his IGCSE ICT project. The web site uses a script to make it interactive. The script is called 'Birthdays' and displays an input box where a user may enter a date of birth. The screen then shows what day of the week that date was.

Design a test plan for the 'Birthdays' script. Give a reason for each test.

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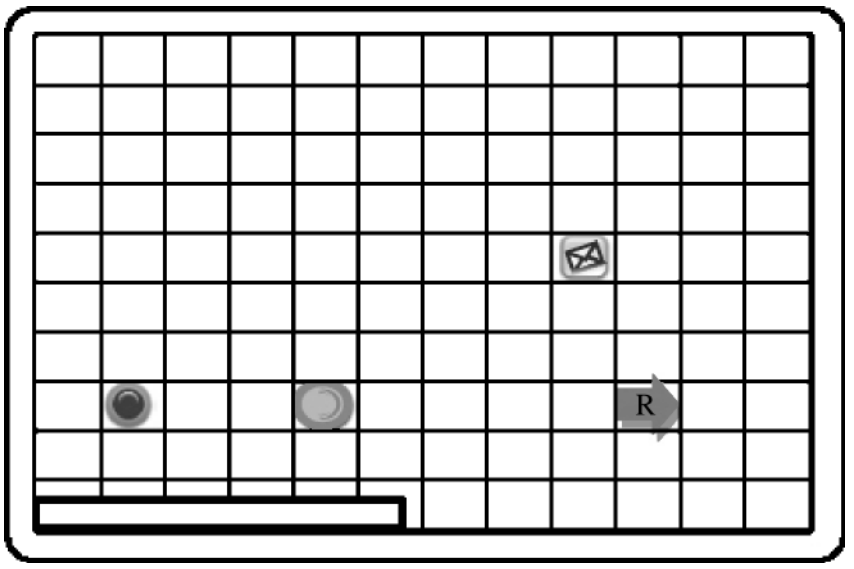
Q11

(Total 7 marks)

Leave blank

12. Sarah has a program on her computer which controls an on-screen robot. When she runs the program it displays a grid, a text input box, and a robot icon on her screen in addition to her original program icons. Sarah's screen display is shown in the diagram.



Symbols used

R On-screen robot

Icon for program 1

Icon for program 2

Icon for program 3

Text input box

The robot may be moved by typing letters into the text input box and then pressing Enter. The robot moves forward in the direction of the arrow.

The possible commands are:

F	forward 1 square	R	turn right 90 degrees
L	turn left 90 degrees	CC	perform a double mouse click
C	perform a single mouse click	U	pick up (cut) an icon
D	put down (paste) an icon		

For example. LFFFLFCC will move the robot over the icon for program 2 and then double click to run program 2.

Leave blank

(a) The robot is at the position shown. Sarah wishes to move the icon for program 3 so that it appears to the left of the icon for program 1. Write the letters she should put into the text input box.

(4)

(b) Sarah can define commands for other keyboard keys. For example, typing T = RR will make the robot turn around when she uses T in future.

Sarah wishes to define a command for key M which will cause the robot to pick up an icon which is one square to its right and place it one square to its left. Write the letters she should put into the text input box.

(3)

(c) The robot is able to detect when it reaches the edge of the screen. Sarah can use loop commands to program the robot. For example, typing **loop F until edge**, will make the robot move forward until it reaches the edge of the screen.

Sarah wishes to define a command for key K which will make the robot move to a corner of the screen.

Write what she should put into the text input box.

(3) **Q12**

(Total 10 marks)

TOTAL FOR PAPER: 100 MARKS

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