Paper Reference(s)

4385/2H

London Examinations IGCSE

Information and Communication Technology

Paper 2H

Higher Tier

Thursday 5 November 2009 – Afternoon

Time: 1 hour 30 minutes

Materials required for examination	**Items included with question papers**
Nil	Nil

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 13 questions in this question paper. The total mark for this paper is 100.
There are 16 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.
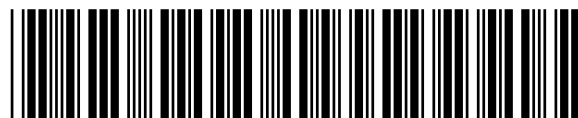Include diagrams in your answers where these are helpful.

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Answer ALL questions

1. Helen manages an athletics club. She uses a database to store details about club equipment.

   (a) Complete the following table about some of the fields within an equipment item's record. The first one has been done for you.

Field name	Example data	Type	Length	Reason
Item	Javelin	Text	15	Example data shows letters, and an item name is unlikely to be longer than 15 characters
Quantity	8			
Purchased	22/09/2005			
Cost	£105.99			

(9)

   When data is entered into the database, it is validated by software. The software uses range checks, length checks, and format checks.

   (b) Choose **two** fields from the table. For each field, name a validation check which would be suitable, and describe how the named validation check would work. The two fields must use different validation checks.

   Choice 1

   Field name .... Validation check ....

   Description...

   ....

   Choice 2

   Field name .... Validation check ....

   Description...

   ....

(4)

(Total 13 marks)

2. Peter wishes to buy a video camera. The one he likes has the following options for recording:

- mini hard drive
- mini DVD
- flash memory card.

(a) Explain why using a flash memory card for recording video is better than each of the other two methods.

A flash memory card is better than a mini hard drive because.....................................

....

....

A flash memory card is better than a mini DVD because..

....

....

(4)

(b) State **one** disadvantage of using a flash memory card rather than the other two methods for recording video.

....

....

(1)

(Total 5 marks)

Q2

3. Workers in an office have complained about health problems. The manager thinks that these problems are caused by poor working practices and not by the computers or the furniture. The manager issues a set of simple health and safety instructions to help to solve the problems.

(a) Give **three** simple health and safety instructions which the manager might issue. In each case give a health problem that would be reduced by following the instruction.

Instruction 1 ....

....

Health problem reduced...

....

Instruction 2..

....

Health problem reduced...

....

Instruction 3..

....

Health problem reduced...

....

(6)

(b) Some health problems are caused by the environment inside an office. For example, overheating can cause tiredness or headaches. These can be reduced by using air conditioning.

State **one** other environmental factor and a health problem caused by it.
State how this problem might be reduced.

Environmental factor ....

Health problem ....

Way of reducing this problem ....

....

(3)

Q3

(Total 9 marks)

4. Three schools in a town each have their own local area network (LAN). The LANs are connected by a wide area network (WAN).

(a) Explain the difference between a LAN and a WAN.

....

....

....

....

....

....

(3)

(b) The schools share classes so that they can offer a greater choice of subjects. Some teachers want to use video conferencing to run classes in all three schools at the same time.

(i) There is a standard PC in each classroom. State **three** other items of hardware which would be needed to run a video conferencing system for this purpose. Give a reason for each item.

Item 1 ....

Reason ....

....

Item 2 ....

Reason ....

....

Item 3 ....

Reason ....

....

(6)

(ii) The PCs are running standard network-enabled operating systems. State **two** other items of software which would be needed to run the video conferencing system.

Item 1 ....

Item 2 ....

(2)

(Total 11 marks)

Q4

5. As part of her IGCSE ICT course, Kara has been asked to prepare a short presentation. It is about the problems of using the Internet as an information source. Her teacher has suggested that one problem is viruses. For example, when downloading from an infected site, a virus might be installed on her computer and damage her files.

Describe **three** other problems which Kara might include in her presentation.

Problem 1 ....

....

....

Problem 2 ....

....

....

Problem 3 ....

....

....

(Total 6 marks)

Q5

6. A company has a multi-user database which is accessed through a web page. The company's sales staff use it to store information about customers and their orders.

(a) Anyone who wishes to use the database must first log in with a user name and password. The database administrator only allows strong passwords.

(i) Describe, with an example, what is meant by a 'strong password'.

....

....

....

....

(2)

(ii) Explain why the database administrator only allows strong passwords.

....

....

....

....

(2)

(b) State **two** problems related to the use of strong passwords.

Problem 1...

....

Problem 2...

....

(2) **Q6**

(Total 6 marks)

7. Computers may be stand-alone or they may be joined in a network.

(a) Give **three** benefits of using a networked computer rather than a stand-alone computer.

Benefit 1 ....

Benefit 2 ....

Benefit 3 ....

(3)

(b) Give **one** disadvantage of using a networked computer rather than a stand-alone computer.

....

....

(1)

(Total 4 marks)

Q7

8. The manufacturer of a computer game states the minimum hardware requirements of a computer to run all the game's features.

The features of the game are:

- the game can be played over the Internet
- playing the game involves using a large number of on-screen controls
- only the game engine and start program are installed, the rest runs from a DVD-ROM
- the game has a smoothly scrolling, 3D display.

(a) For each feature, identify and give a suitable specification for the hardware item required.

(i) The game can be played over the Internet.

Hardware item ....

Specification ....

(2)

(ii) Playing the game involves using a large number of on-screen controls.

Hardware item ....

Specification ....

(2)

(iii) Only the game engine and start program are installed, the rest runs from a DVD-ROM.

Hardware item ....

Specification ....

(2)

(iv) The game has a smoothly scrolling, 3D display.

Hardware item ....

Specification ....

(2)

(Total 8 marks)

9. Sunil is a plasterer. He uses a spreadsheet to calculate a price for plastering walls and ceilings. Sunil assumes that rooms are rectangular and he ignores doors and windows when making his measurements. The spreadsheet shows the figures for his latest job.

	A	B	C	D	E	F
1	**Room**	**Width m**	**Length m**	**Height m**	**Wall area m^2**	**Ceiling area m^2**
2	Lounge	3.2	3.6	3.2	43.52	11.52
3	Dining room	3.0	3.5	3.2	41.60	10.50
4	Bedroom 1	2.6	2.8	2.9	31.32	7.28
5	Bedroom 2	2.7	2.9	2.9	32.48	7.83
6	Bedroom 3	3.1	2.2	2.9	30.74	6.82
7					Total area m^2	Total area m^2
8					179.66	43.95
9	Wall		Ceiling		Price	Price
10	Price per m^2	£5.50	Price per m^2	£7.25	£988.13	£318.64
11					Total price	£1306.77
12						

(a) State the function which will be in cell F8 ....
(2)

(b) State the formula which will be in cell F2 ....
(2)

(c) State the formula which will be in cell E6...
(3)

(d) If the Total price for a job is over £500, Sunil requires an advance payment of 25%.
If an advance payment is required, it is displayed in cell F12.
State the function which would be in cell F12.

....
(3)   **Q9**

(Total 10 marks)

10. The manager of a new stadium wishes to test that crowds of people can leave quickly if there is a fire. A programmer makes a computer model which simulates crowd movements in a virtual stadium.

(a) The programmer must input several variables. One of the variables is the location of the fire. This is needed because the simulated crowd should not go through that location.

State **two** other variables that could be input. Give a reason in each case.

Variable 1 ....

Reason..

....

Variable 2 ....

Reason..

....

(4)

(b) Explain why the stadium will not be given a safety certificate until tests are done with real people.

....

....

....

....

(2) **Q10**

(Total 6 marks)

11. People can buy books from a bookshop by:

- visiting the shop
- using a mail order catalogue
- using a web site to order and pay for books on-line.

(a) Give **two** reasons why the shop owner prefers customers to use the web site rather than mail order.

Reason 1 ....

....

Reason 2 ....

....

(2)

(b) Give **two** reasons why customers prefer to use the web site rather than mail order.

Reason 1 ....

....

Reason 2 ....

....

(2)

(c) The shop owner uses the web site to improve sales. Describe **three** other ways that the shop owner could use the Internet to improve sales.

Way 1 ....

....

Way 2 ....

....

Way 3 ....

....
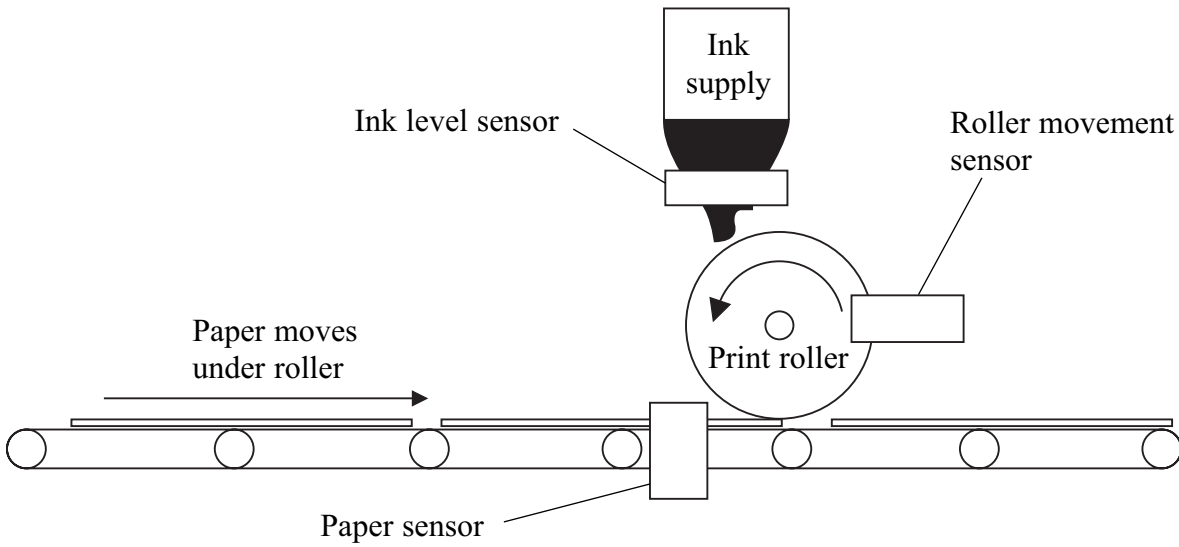
(3)

Q11

(Total 7 marks)

12. A company has a computer-controlled printing press. The paper movement, ink flow, and print roller are all controlled by a microprocessor. The printing press and sensors are shown in the diagram.

(a) Describe how the ink level sensor might detect the ink level.

....

....

....

....

(2)

(b) The sheets of paper are carried by a conveyor belt which runs at a constant speed. The sheets of paper might not be evenly spaced.

The print roller is driven by an electric motor controlled by the microprocessor.

Explain how the microprocessor ensures that the roller is correctly positioned for each sheet of paper.

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....

....

(6)

(Total 8 marks)

Q12

13. An algorithm called Countdown accepts as input an integer **N**.
The value of **N** lies in the range 1 to 99.
The algorithm validates the input and displays an error message if the input is incorrect.
The algorithm displays a countdown of the integers from **N** down to 0 and then stops.

Produce the Countdown algorithm, as a flowchart or structured English, in the space below.

Q13

(Total 7 marks)

TOTAL FOR PAPER: 100 MARKS

END

N 3 4 9 3 6 A 0 1 6 1 6