CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International Advanced Subsidiary and Advanced Level

MARK SCHEME for the October/November 2014 series

9713 APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

9713/12 Paper 1 (Written A), maximum raw mark 80

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2014 series for most Cambridge IGCSE[®], Cambridge International A and AS Level components and some Cambridge O Level components.



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1 (a)_____

Responses can be machine readable	
As the questionnaires would be anonymous, system users might exaggerate their responses	✓
Users can take them away and complete them in their own time	
It is quicker to collate data	

[1]

(b)

 System users might not answer honestly and give the answers they think the interviewer wants to hear	✓
Questions can be tailored to suit the individual	
Supplementary questions can be asked	
It is possible to make sure that all users' opinions are collected	

[1]

(c)

-,		
	You can see the system first hand	
	The observer will get a good overall view of the process	
	System users might behave differently if they know they are being watched	✓
	Users do not have to spend time away from work	

[1]

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2

Identify who the manager is	
Identify the sources and volume of input data and collection methods	✓
Identify the input documents currently in use	✓
Determine how much each worker is paid	
Determine the frequency of the addition and deletion of records	✓
Identify the colours used in the company logo	
Identify the manual and computer procedures necessary to achieve the current output	✓
Identify how many workers there are	
Identify the manufacturer of the packaging	
Determine the location of the food mixer	

[4]

3 (a) Store

The actual data output from the system recorded for future use

Process box

<u>Data</u> processes are put in a process box/accept an example

Data flow arrow

Each arrow (is labelled to) shows what data is flowing at that point in the diagram/gives the direction of data flow

Terminator

When data flows from or to somebody or somewhere outside the system, that somebody or somewhere is called a terminator [4]

(b) Three from: To establish all the relevant features of the existing system To identify problems with/limitations of the existing system To help identify the required inputs, outputs, storage and processing requirements system To determine the quantity and format of the output/type of output devices required Volume of data being input will be known To help determine an appropriate method of input/type of input devices To help him determine the size and speed of the processor required To determine how much data needs to be stored To help him know what to recommend in terms of size and number of storage deviced to help identify the user requirements To help identify suitable hardware and software To help programmers to develop and improve a new system Helps show job duplication 4 (a) Mixing ingredients Batch process control Raw materials are mixed for a certain length of time/amount of each ingredient councontrolled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer/length of time for each stage could be controlled by computer length of time for each stage could be controlled by computer length of time for each stage could be controll	Page 4	Mark Scheme	Syllabus	Paper
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ston/start process/in between cartons the process pauses/stops		Each container is filled and has a label put on it which is like an on/off of stop/start process/in between cartons the process pauses/stops	or	[

Process is virtually unending/low temperature needs to be maintained continuously

[1] [1]

Refrigeration

Continuous process control

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(b) Six from:

Benefits

Quantities of ingredients can be measured more accurately

Time spent on a task can be monitored more accurately

Temperature can be set more accurately

There will be greater productivity

Fewer hours will be worked by each worker so less paid in wages

Whole process can be continuous/no need to stop e.g. at shift changeovers

The product is produced to a more consistent standard

Drawbacks

If incorrect programming whole batch may be lost

Initial costs of computer equipment/technical staff to set it up/initial setup/installation may be expensive

Cost of retraining workforce will be high

One mark is available for a reasoned conclusion

Must have at least two of each to gain full marks

[6]

5 Six from:

Noisy environment so noise of printing is not a factor

Limited data output required so quality is not important

Time interval is such that speed of printing is not an issue

Environment may contain food particles so laser/inkjet may not be robust enough

Running costs of dot matrix printer are lower than laser/inkjet

Ribbon would need to be changed less often than an inkjet cartridge

Paper would not need to be refilled as often as inkjet/laser

Inkjet may produce printouts where the ink will 'run' if damp environment

Chemicals from a laser printer could contaminate the food mixture

[6]

6 (a) Two from:

Working less than the normal working hours...

...of a full time employee

Working mornings or afternoons only...

...rather than a whole day

Working fewer days...

...rather than the than a full working week

[2]

(b) Two from:

More free time/more time to spend with family due to fewer hours worked Will still be doing work that they have been trained for/are used to...

...if they had to change jobs they might lose their skills/self-confidence

Less stressful as they can miss rush hour traffic

[2]

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(c) Two from:

Lower wages due to fewer hours worked Lower wages as part time workers tend to be on lower rates of pay Less likely to receive in job training Difficult to become part of company's pension scheme/health scheme May have to work unsociable hours/shifts May have to find another job to supplement income

[2]

7 (a) Three from:

Can be put in strategic locations
Can be aimed at a much wider audience than a local area
Easier to update as you do not have to reprint a lot of copies
Use more professional images
Cannot be so easily destroyed/defaced whereas flyers can be thrown away
Posters are more difficult to ignore/eye catching
Takes a shorter time to put up a poster than to deliver flyers

[3]

(b) Four from:

Flyers can be delivered to all households in a locality
Posters/presentations can only be seen in a limited number of places
Can be sure that all of their target audience will see the advertising
Can be printed on own PC and printer/poster more likely to need professional printers
Can cost less to distribute than renting a space
Can be included in newspapers/magazines reducing costs of distribution
Flyers can contain more information than a poster

[4]

8 Inputs

Two from

Required room temperature entered by keypad/touch screen/remote control
Current temperature from temperature sensor
Time at which system comes on entered by keypad
Length of time system is to be on/time at which time system switches off entered by keypad

Outputs

Two from

Actuator/signal to heater to switch on/off Actuator/signal to boiler to switch on/off Actuator/signal to pump to switch on/off Temperature on LED/LCD LED/LCD to show if heater is on or off

[4]

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9 (a) Four from:

Easier to keep track of projects/workers/Johanna

Some companies have management systems and cultures that are not (yet) well adapted to the flexibility of home working

Not all tasks are best performed in a self-managing environment

Workers might work more effectively with a manager directly overseeing them

Would not have to subsidise manager's home computer/utility costs

Data would be more secure as it would not leave the office

She might not have good enough time management skills to work effectively from home [4]

(b) Two from:

Young children/pets at home demanding attention

Have to take dog for a walk

Family members/neighbours/friends popping round for a chat/visiting

Television may tempt her to watch her favourite programme

[2]

10 Five from:

Agree a date and time

Send a reminder shortly before start

Ensure webcam, microphone, speakers are ready

Carry out tests on microphone and speakers/headphones

Large screen/monitor so that trainer can see participants/to output images

Large screen/monitor in offices so that participants can see each other as well as trainer

Speakers so that participants/trainer can hear each other

Microphone – to input voices/so that workers can speak with the trainer

Webcam – to input video/so that images of each examiner can be transmitted/sent

Webcam normally fixed to top of monitor/moved to ensure trainer can be seen

Broadband network connection/router used to transmit voice/pictures between offices

Make sure software is loaded and connection to internet/network connection is working

Participants log on to system/conference/training session

[5]

11 (a) Five from:

Browse product/item categories

Find/select product/book/item category

Browse products/books/item

Select product/book/item

Search for product/book title/author/item

Choose format

Choose quantity

Add to/place selected products in shopping basket

Enter/log on using username and password

[5]

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(b) Four from:

If you work certain hours and cannot get to book shop in normal opening hours Where it's difficult to leave the house due to young family People with disabilities making it difficult to walk When you live in remote areas/live long way from shops The shop you want to use only has an online presence The book/product is not available in the local shop May not have any type of transport to get to the shop

[4]

(c) Four from:

May not have a computer with a reliable internet connection May not have a reliable electricity supply May not have the computer skills necessary Some people may not have a credit/debit card Some people with sight disabilities may not be able to see details on the screen Some people with poor motor skills/hand disabilities might not be able to control the mouse

[4]

12 (a) Four from

Format the reporter's story Template of the newspaper is created Typesetting/kerning to adjust spacing between characters Fonts and font size chosen Leading/space between lines is chosen Margin sizes are chosen Crop the images to remove unwanted material Resize the image to fill the layout Choose the orientation

[4]

(b) Three from:

Encoded/digital signals are used to send the pages up to a satellite Satellite receives the data signals Satellite directs the signals towards the destination fax machine/signal is transmitted to the printing plant Signal is received by the antenna/receiver [3]