

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

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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

Data 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]

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(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 of the 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 devices
- 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 **[3]**

4 (a) *Mixing ingredients*

- Batch process control **[1]**
- Raw materials are mixed for a certain length of time/amount of each ingredient could be controlled by computer/length of time for each stage could be controlled by computer **[1]**
- Production line*
- Discrete process control **[1]**
- Each container is filled and has a label put on it which is like an on/off or stop/start process/in between cartons the process pauses/stops **[1]**
- Refrigeration*
- Continuous process control **[1]**
- Process is virtually unending/low temperature needs to be maintained continuously **[1]**

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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]