

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International Advanced Subsidiary and Advanced Level

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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]

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]