MARK SCHEME for the October/November 2015 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 2015 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

1

Computers can monitor patients continuously.	✓
Nurses never get tired and never forget to take readings.	
Readings taken by nurses are more accurate than computers.	
Computers can measure more than one variable at any one time.	✓
When nurses take readings charts are produced automatically.	
Nurses are faster than computers to react to changes in a patient's condition.	
A computer can monitor the condition of several patients at the same time leaving nurses free to do other tasks.	✓
Computers do not cost any money.	
A computer can only monitor one condition at a time.	
The use of computers to take readings reduces the chances of nurses being exposed to contagious diseases.	✓

[4]

2

Sensors store the pre-set value.	
Sensors feed back data to the computer.	✓
If the patient's blood pressure is too high the sensor sends the reading to the computer.	
The sensor readings are converted from digital to analogue so the computer can process them.	
The computer compares any data fed back by a sensor to a pre-set value.	✓
The computer is unable to produce charts showing the patient's progress.	
Sensors are used to monitor a patient's physical variables such as blood pressure, pulse rate and body temperature.	✓
The computer cannot take readings without the nurse supervising it.	
If any data is outside the pre-set range the computer sounds an alarm.	✓
The process is not continuous.	

[4]

3   **Three** from:

Batch processing is the processing of transactions/data in sequence but monitoring is real time
Data is collected in batches and then run altogether but data needs to be collected continuously
Batch processing is only suitable for applications where results of processing is not time critical but monitoring is time critical
Warning to nurses would have to be given without any delay   **[3]**

4   *Anonymising information*   **[1]**
Individual records are summarised without mentioning the person by name   **[1]**

Aggregating information   **[1]**
Personal details of individuals are <u>combined</u> to provide summarised
information without naming those individuals.   **[1]**

5   **Four** from:

Organise appointments with stores
Send emails to stores/company
Store contact details of store managers
Send/receive texts to keep in contact with the office/manager
Phone to contact stores/management teams/head office
Take photos of stores/management teams   **[4]**

6   **Five** from:

Agree a date and time
Send a reminder shortly before start
…including access to password/PIN
Ensure webcam, microphone, speakers are ready
Carry out tests on microphone and speakers/headphones
Adjust webcam so participants can be seen
Log on to the system/internet
Ensure video conferencing software/internet connection is running properly/installed
Create room(s)/environment
Enter virtual room   **[5]**

7   **Three** from:

Identify the sources of input data
Identify the volume of input data
Identify the data collection methods
Identify the input documents currently in use
Identify the output documents currently in use
Identify the computer procedures necessary to achieve the current output   **[3]**

8 (a) Five from:

Drop down menus
Submit/Save button
Exit button
Adequate space for field contents
Fonts/font size should be easy to read
Instructions how to complete form/help button
Clearly labelled field names
Fields spaced out/group relevant fields together
Sensible colour scheme
Use of tick boxes/radio buttons   **[5]**

(b) Four from:

Easier to correct
Easier to duplicate data when records contain the same data
Easier to move to a particular record for editing purposes
Easier to read/clearer data in free text fields
Built in validation rules to prevent missing data in fields/making sure data is
reasonable/prevent errors   **[4]**

9 (a) Four from:

The purpose of the system to give an overall description of what the system does
The input and output formats, so that you know how to enter data and know what the output
will look like
The hardware and software needed to run the system so that the user doesn't use the wrong
hardware/software
Examples of sample runs of the system so that the user can tell if they are using the system
in the correct way.
Troubleshooting guide/a list of Frequently Asked Questions to know what to do when errors
occur   **[4]**

(b) Three from:

The systems analyst would not have a detailed overview of the whole system
It would be difficult for programmers/systems analyst to amend the system to eliminate errors
Programmers would have difficulty fully understanding the program code that has been used
It would be difficult to develop further the system or upgrade it   **[3]**

10 *Method:* Could **observe** users performing set tasks and record their progress using video recording/get an user to perform a task and measure the time it takes them to carry out the task **[1]**

Drawback: Description of the Hawthorne effect **[1]**

Method: **Interview** users to gather their responses about what they thought of the system and how easy it was to use **[1]**

Drawback: Users have to be available at the time the analyst wants to interview them/ time consuming as it may take a long time to interview all the users/may get answers which the user thinks the analyst wants to hear **[1]**

Method: Hand out **questionnaires** to users to ask them about their thoughts on the new system with regard to how easy they found it to use **[1]**

Drawback: They may give answers which are exaggerated as they are anonymous/question cannot be changed once they are typed up/follow up questions cannot be asked **[1]**

11 (a) Three from:

Phone operators will be paid less
Buildings needed to house call centres will be cheaper to buy/rent
Call centre opening during normal hours in some countries would be unsociable hours in UK leading to a lower wage bill **[3]**

(b) Three from:

The operator will be able to understand most UK dialects
The customer will usually be able to understand operator's accent
Operators should not have difficulty with UK culture
Operators may not have to stick to script/may be able to answer
out of the ordinary questions **[3]**

12 (a) Three from:

Type in the address of the school correctly
Enter a suitable subject line related to the message
Make sure the message is encrypted
Compress the file
…using a suitable format/using suitable compression software **[3]**

(b) Four from:

Anti-virus software will quarantine the attachment so that you cannot open it
File could be corrupted in transmission
Might not have the software needed to open it
Might not have the software required to decompress it
The file was not attached
Might not have the password required to decompress it **[4]**

(c) Five from:

Use AND operator so that more than one condition must be met which will reduce the number of hits
Use OR operator so that only one of at least two conditions needs to be met which will increase the number of hits
Use NOT operator so that items failing to meet a condition are removed to exclude unwanted results
Use quotes to limit the items to those that match the condition exactly which will reduce the number of hits
Use wild cards so that any one of a number of matching items will result which will increase the number of hits
Use a different type of search engine so that different results may be obtained **[5]**

13 (a) Phishing **[1]**

Pharming **[1]**

Spyware **[1]**

Hacking **[1]**

Viruses **[1]**

Cookie **[1]**

(b) (i) Encryption **[1]**

(ii) Two from:

Causes data to be scrambled/encoded
Requires an encryption key/software to encrypt
Requires a decryption key/encryption software to decrypt
Results in data which is not understandable/readable
Protects sensitive data
…from being understood if it falls in to the wrong hands **[2]**

(c) Four from:

Detailed description of use of passwords and user IDs
Detailed description of SSL or TLS
Description of use of drop down menus to prevent access by keyloggers
Detailed description of anti – spyware software
Detailed description of firewall – hardware – or software-based, that controls incoming and outgoing network traffic based on a set of rules **[4]**

[Total:80]