

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International Advanced Subsidiary and Advanced Level

## **MARK SCHEME for the October/November 2015 series**

### **9713 APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY**

**9713/12**

Paper 1 (Written A), maximum raw mark 80

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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]

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**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 combined 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]

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**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]**

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- 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]

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**(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]**