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**APPLIED INFORMATION & COMMUNICATION TECHNOLOGY**

**9713/12**

Paper 1 Written A

**May/June 2016**

MARK SCHEME

Maximum Mark: 80

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**Published**

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1 (a)

[6]

Mobile phone:

A phone that can make/receive calls/messages while the user is on the move  
To stay in contact with head office/shops/ to store his appointments/store phone numbers of shops/colleagues/to phone shop if going to be late for an appointment

DVD player:

A battery powered device that replays DVDs  
For watching videos about new products/to show videos of toys to shops/to study training videos

Satellite navigation system:

A system that pinpoints a user's position/finds the quickest way to a location  
To direct salesperson to customer shops/ to allow salesperson to miss traffic holdups so that appointments are met/to pinpoint the location of a shop

2 marks available for each

(b) **Three** matched pairs from:

[6]

**Two** from:

Salesperson should have a duty of confidence  
Salesperson should sign a confidentiality agreement  
Must keep the details of orders confidential  
Must not share data collected with any other person or organisation  
Must treat the information as confidential/it must be obvious to them that the information is given in confidence

**Two** from:

Salesperson should have a duty of fidelity  
Must be loyal to Mytoy...  
...for as long as they are employed  
Must not give information (about new toys/customers) to a rival company  
Employee is free to use skills and knowledge acquired from company after they leave them

**Two** from:

MyToy should anonymise information wherever possible  
MyToy should aggregate information wherever possible  
Limited amount of information should be collected/transmitted

**Two** from:

MyToy and its employees must abide by the Data Protection Act  
Any 2 examples of a DPA principle

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(c) **Three** pairs of answers from:

**[6]**

Database

**Two** from:

Used to store customer/toy shop data

Used to store customer orders

Salesperson can prepare for visit with knowledge of customer details

Sales/orders can be added to/edited during the course of a visit

Customer details can be added to/edited during the course of the visit

Charts produced showing sales per shop

Spreadsheet

**Two** from:

When an order is taken the salesperson will use the spreadsheet to calculate the cost of the order

Can be used to provide an invoice for the customer

Can be used to show trends of customer sales

Web browser

**Two** from:

Allows the salesperson to show the customer information/images that will answer questions about toys

Can be used by salesperson to look up customer's web site to prepare for visit

Email software

**Two** from:

Allows salesperson to send emails to head office

Can email customer/store to confirm planned visit

Can email customer/store to confirm orders

Presentation software

**Two** from:

To advertise new products to customers/stores

To show details of all the products to customers/stores

To show potential earnings to customers/stores

To enable salespeople to be kept up to date with training presentations

To create slideshows of products to show customers/shops

To create slideshows to show sales progress to managers

Time management software

**Two** from:

To organise appointments with customers/stores

To help with daily and weekly planning

Alerts to start of meeting with customer

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**2 (a) Six from:** **[6]**

Each operator has a computer to provide data about the toys  
 Each operator has a headset to communicate with customer  
 Each operator's computer contains a telephony card  
 Card allows a link to the telephony server  
 The server directs a call to the appropriate operator  
 Calls up matching customer records  
 Displays the script for the operator  
 Can record conversations/calls with customer  
 Software enables on-screen phone control such as answer, hang up, hold, conference, re-dial  
 Description of IVR (interactive voice response)  
 Displays caller ids  
 Queues calls  
 The operator's phone communicates directly with the server  
 The server controls all the phones  
 The operator's computer does not control/is not controlled by the phone although it may be physically connected  
 Any computer in the system can be used to control any phone  
 Allow supervisors, for example, to intervene if the call proves too complex for the operator to handle

**(b) (i) Three from:** **[3]**

Emails may contain a virus, including a description of the result  
 Email may be SPAM, which can alert the sender to the fact it is a valid email address  
 Email might contain offensive material upsetting the customer  
 Spyware can be attached to an email

**(ii) Three from:** **[3]**

Email could be from an unknown new sender  
 Emails containing attachments  
 Attachments could have unusual file extensions...  
 ...e.g. .exe, .bat, .com  
 Email might contain no subject line  
 Email address of sender is not the same as normal MyToy email address  
 Anti-virus software may inform you  
 If email has been sent to spam/junk folder

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3 (a) (i) Observation: [2]

Benefit

Enables the systems analyst to see the process as a whole

Drawback

Explanation of the 'Hawthorne effect'

(ii) Questionnaires: [2]

Benefit

Answers tend to be, on the whole, more accurate/everyone can complete the questionnaire at the same time instead of one after the other (as with interviews)/can complete it at their leisure

Drawback

It is very difficult to ask further questions based on the response to another question/can be anonymous and so may not be taken seriously by user

(iii) Interviews: [2]

Benefit

Interviewer can move away from their 'script' and ask a more in-depth question if a particular response is given/can interpret body language

Drawback

Users have to be available at the time the systems analyst wants to interview them/may not have the time/can take a long time to interview all the users  
Interviewees might try and provide answers which they think the interviewer wants to hear

(b) Six from: [6]

- Parallelogram shows input to the system
- Rectangles show individual processes
- Cylinder shows data that is stored on (magnetic) hard disks
- Final symbol represents output/printout
- The arrows show the direction of flow of data
- The processing of a customer payment

(c) (i) Three from: [3]

- May be in danger of losing their jobs
- May have to be retrained
- Some workers may have to/may have the opportunity to go part time
- There may be the opportunity to job share
- There may be the opportunity for flexible working hours
- There may be the opportunity to work compressed hours
- Workers may need to have the ability to move from branch to branch
- May change job because technical jobs made available

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(ii) **Three** from: [3]

May lose the branch in their town  
 Might be concerned that hackers might hack into account and transfer funds to own account  
 Expense of buying a computer with a broadband internet connection  
 Unable to make cash deposits or withdraw cash without physically going to the bank or to an ATM  
 Reliability of internet connection cannot be guaranteed so may not be able to carry out transaction  
May not like it that the bank is not providing the 'personal touch'  
 May mismanage accounts as it is so easy to transfer money from one account to another  
 Security concerns about data transmitted over internet such as hacking, phishing, pharming, spyware, viruses, malware  
 Description of phishing  
 Description of pharming  
 Description of viruses

4 (a) **Six** from: [6]

Required temperature is input using remote control/touchscreen /number pad  
 Sensor is used to monitor current temperature of the room  
 Sensor sends reading to the computer  
 Computer compares temperature from sensor to the pre-set value  
 If sensor temperature is higher/lower than pre-set value computer sends a signal...  
 ...to the actuator  
 ...if lower computer/actuator switches heater on  
 ...if higher then computer/actuator switches heater off

(b) (i) **Four** from: [4]

All records will be processed when the payroll is run/no records will be missed  
 They need to be in same order as master file  
 Processing time will be reduced  
 Payroll uses batch processing and sequential files are better suited to batch processing

(ii) **Two** from: [2]

Individual records may be slower to find  
 Individual records may take longer to edit  
 A record can only be replaced if the new record is exactly the same length as the original  
 Records can only be updated if the data item used to replace the existing data is exactly the same length

5 (a)

Field Name	Data Type	Example data
ItemName	Text	Boiler
NumberInStock	Integer	236
Price	Currency	\$14.95
ItemLocation	Text	06:71:03
MinimumStock	Integer	100

Field Name	Data Type
SupplierName	Text
SupplierAddress	Text
SupplierEmail	Text
DiscountOnPrice	Integer/currency
OrderPlaced	Boolean/Date

**Five** from:

[5]

All 5 Text only data types  
 NumberInStock and MinimumStock set to integer  
 Price set to Currency  
 DiscountOnPrice set to integer/currency  
 OrderPlaced set to Boolean/Yes or No/Date

**(b) Four** from:

[4]

A field that will be common to both the ITEM table and the SUPPLIER table  
 A field which will contain unique data  
 Needed to act as the link field between the tables  
 Acts as the key field in the Item/Supplier table  
 Acts as foreign key in the Supplier/Item table

**(c) Five** from:

[5]

Type check on NumberInStock: must be numeric  
 Range check on NumberInStock: between 50 and 500  
 Type check on Price: must be numeric  
 Range check on Price: between \$20 and \$1000  
 Format check on ItemLocation: Three pairs of digits separated by colons  
 Length check on ItemLocation: must be 8 characters  
 Range check on MinimumStock: between 20 and 100  
 Type check on MinimumStock: must be numeric

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6 Six from:

[6]

A system of versions can be used  
Editor protects document as tracked changes/comments only  
Publishes it online to restricted website/sends it to members  
Each member of the group saves their version with a file name/number  
Each member must save their version with a different version name/number  
Each file name could have the member's initials appended  
Each member uploads file after editing to restricted website/send it to secretary  
The secretary can then decide which corrections should be used, if any  
Member versions of the report can then be merged to show all suggested amendments from which the secretary can choose  
Tracked changes  
...so that the changes can be clearly seen  
...and either accepted or rejected  
The secretary will be responsible for ensuring that version numbering is maintained (and that deadlines are met)  
Alternatively one file is used  
Each member comments on the file and sends it to the next member  
Comments can be in a different colour for each member of the group