Published

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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 May/June 2016 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.
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
(c) Three pairs of answers from:

**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
2  (a) **Six** from:

- 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:

- 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:

- 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:  

Benefit  
Enables the systems analyst to see the process as a whole  

Drawback  
Explanation of the ‘Hawthorne effect’  

(ii) Questionnaires:  

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:  

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:  

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:  

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
(ii) Three from:

- 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:

- 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:

- 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:

- 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 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ItemName</td>
<td>Text</td>
<td>Boiler</td>
</tr>
<tr>
<td>NumberInStock</td>
<td>Integer</td>
<td>236</td>
</tr>
<tr>
<td>Price</td>
<td>Currency</td>
<td>$14.95</td>
</tr>
<tr>
<td>ItemLocation</td>
<td>Text</td>
<td>06:71:03</td>
</tr>
<tr>
<td>MinimumStock</td>
<td>Integer</td>
<td>100</td>
</tr>
</tbody>
</table>

Field Name | Data Type
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SupplierName</td>
<td>Text</td>
</tr>
<tr>
<td>SupplierAddress</td>
<td>Text</td>
</tr>
<tr>
<td>SupplierEmail</td>
<td>Text</td>
</tr>
<tr>
<td>DiscountOnPrice</td>
<td>Integer/currency</td>
</tr>
<tr>
<td>OrderPlaced</td>
<td>Boolean/Date</td>
</tr>
</tbody>
</table>

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
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