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**INFORMATION AND COMMUNICATION TECHNOLOGY**

**0417/13**

Paper 1 Written

**May/June 2016**

**MARK SCHEME**

Maximum Mark: 100

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**Published**

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 May/June 2016 series for most Cambridge IGCSE<sup>®</sup>, Cambridge International A and AS Level components and some Cambridge O Level components.

- 1 (a) Keyboard [1]
- (b) Mouse [1]
- (c) Temperature sensor [1]
- (d) Joystick [1]

2

	<b>Email</b> (✓)	<b>Fax</b> (✓)
Transmission of messages is relatively slow		✓
When received can be edited using a word processor	✓	
Can have attached sound files	✓	
The message is basically an image		✓

4 correct answers – 2 marks  
 2 or 3 correct answers – 1 mark  
 1 correct – 0 marks

[2]

3

	<b>TRUE</b> (✓)	<b>FALSE</b> (✓)
WLAN stands for Wide Local Area Network		✓
A WAN often requires the use of a router	✓	
The internet is a WAN	✓	
A LAN usually covers a smaller area than a WAN	✓	

4 correct answers – 2 marks  
 2 or 3 correct answers – 1 mark  
 1 correct – 0 marks

[2]

- 4 (a) Normal data [1]
- (b) Abnormal data [1]
- (c) Extreme data [1]
- (d) Live data [1]

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**5 Four from:**

- Air flight tickets
  - Theatre tickets
  - Holiday booking
  - Cinema tickets
  - Rail tickets
  - Hotel room booking
  - Restaurant table/seat booking
  - Football match booking
  - Concert/performance booking
- [4]

**6 Four from:**

- Microprocessor controlled devices do much of the housework
  - Do not need to do many things manually
  - Do not need to be in the house when food is cooking
  - Do not need to be in the house when clothes are being washed
  - Can leave their home to go shopping/work at any time of the day
  - Greater social interaction/more family time
  - More time to go out/more leisure time/more time to do other things/work
  - Are able to do other leisure activities when convenient to them
  - Can encourage a healthy lifestyle because of smart fridges analysing food constituents
  - Do not have to leave home to get fit
- [4]

- 7 (a)** As well as the recipient this sends a copy of the email to the email addresses listed after cc [1]
- (b)** bcc is the same as cc except that the recipient is unaware that copies have been sent [1]
- (c)** This sends a message that has been received to another email address [1]
- (d)** This is a group of email addresses that are given a group name so that the sender only needs to type in one name to send an email to several recipients at once [1]
- (e)** A file that is sent attached to/with the email [1]

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**8 (a) Three** from:

The books database is searched to find the accession number  
The fingerprint scan is converted into digital data patterns  
The computer then maps points on the fingerprints and uses those points...  
...to search for similar patterns in the (borrower) database.  
Matching record is found  
The membership number is retrieved  
Record is checked to see if number of books allowed is not exceeded/are fines due?  
The membership number is written to the file against the accession number in the books database  
The accession number is written against membership number in the borrower file. [3]

**(b) Two** from:

Accession number is compared with those on book file  
Matching record is found  
Record is flagged as returned/changed to returned  
The accession number is deleted against membership number in the borrower file/borrower is recorded as having borrowed one less book  
Computer calculates if book has been returned overdue [2]

**9 (a) Two** from:

Sort code  
Account/bank card number  
3 digits from password/passcode  
Memorable date/mother's maiden name/favourite place/answer to security question/place born  
Date of birth [2]

**(b) Three** from:

Transfer money to a different account  
Pay bills  
Amend/create standing orders/direct debits  
Order a new PIN  
Stop a cheque  
Can ask about recent/pending transactions  
Can apply for a loan  
Can check account balances  
Can transfer funds between accounts  
Can amend personal details [3]

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10 (a) Two from:

Student id number/prompts for student number  
date of birth  
student name  
Instructions on how to complete the form  
Question numbers  
Centre number  
Centre name [2]

(b) Three from:

Dedicated scanner device shines a beam of light onto the form  
Light is reflected back to sensors  
Marks reflect less light so sensors used to identify position of marks  
Computer compares these with correct answer positions [3]

(c) Three from:

If the marks don't fill the space completely they may not be read correctly/overflow the space/smudged  
If the marks are not in a dark enough pencil they may not be read correctly  
If more than one lozenge shaded in result is invalidated  
Only suitable for recording one out of a selection of answers, not suitable for text input  
Have to use prepared forms which may be expensive  
Examinations could consist of mainly multiple-choice questions changing the nature of what is being tested [3]

11 (a) Two from:

Use a check digit  
Single digit calculated from other digits appended to these,  
Computer carries out fresh calculation on digits and compares answer with original check digit. [2]

(b) Limit check/range check – 1 mark  
**Reorder\_level** <=100 – 1 mark  
He probably omitted/forgot the = sign – 1 mark [3]

(c) Use a format check – 1 mark  
**Supplier\_code** should be 2 letters followed by 3 digits – 1 mark [2]

(d) **Barcode** – text/alphanumeric [1]  
**Supplier\_code** – text/alphanumeric [1]  
**Contents** – text/alphanumeric [1]  
**Price** – (number), currency [1]  
**Reorder\_level** – (number), integer [1]  
**Weight** – (number), decimal [1]

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12 (a) =Countif(B\$2:B\$23,D5)

Countif – 1 mark

(B2: – 1 mark

B23, – 1 mark

Absolute referencing – 1 mark

D5) – 1 mark

[5]

(b) A24 – 1 mark

B24 – 1 mark

D15 – 1 mark

[3]

13 Internet Service Provider/provides Internet access – 1 mark

**Two** from:

Often offers web space to create own website

Provides email address

Router to connect to the internet

Domain name to have own website

Storage space to save data in the cloud

DNS service to convert URLs to IP addresses

[3]

14 **Six** from:

Internet is not policed so information is not necessarily reliable

Anybody can have a website so information is not necessarily reliable

Anybody can publish their understanding of a topic so information is not necessarily reliable

If site has excessive advertising it could be unreliable

If the advertising is related only to its own products it could be unreliable

The final part of a URL can help to identify reliability...

... .ac..., .gov, .org government/academic sites are usually fairly reliable

If site is endorsed by reliable/reputable people/organisations it can be accepted as being

reliable/If it has links to other reliable sites/ sites which have testimonials it is usually reliable/If it

has testimonials it is likely to be reliable

If the author's credentials are good it is likely to be reliable

If information is comparable to information from reliable/authenticated text books it is likely to be

reliable

If the date of the last update was a long time ago it is likely to be unreliable

Sites which have grammatical/spelling mistakes are likely to be unreliable

Compare information from different sites/text books to see if the results are similar

If it has been recommended by teachers it is likely to be reliable

[6]

15 (a) *Jpeg* –

Joint photographic experts group – 1 mark

Commonly used for lossy compression for digital images/Used for complex images/photographs/used for saving storage space/used for increasing transmission speed/reduced download time (particularly with web pages) – 1 mark

[2]

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**(b) Png**

Portable network graphics/raster graphics file format – 1 mark  
 Uses lossless data compression/Used for transferring logos or images with no colour gradient – 1 mark [2]

**16** The shape has been filled with black/dark colour – 1 mark  
 It's height has been increased whilst leaving the width as the original – 1 mark  
 It has been rotated through 180°/reflected about the base – 1 mark [3]

**17 Six from:**

Missing `</a>` on fourth line  
 Missing `</td>` on fourth line  
 Missing a in `<href>` on sixth line  
 . instead of : after mailto  
 , instead of ? in front of subject  
 Extra > in subject line of email  
`<a>` instead of `</a>` on eighth line [6]

**18 Six from:**

Make images more mature  
 Make font type more appropriate  
 Plain background  
 Insert a heading  
 Make language more appropriate  
 Include slide numbers  
 Consistency of display through use of master slide  
 Images not overlapping with the text [6]

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**19** To be marked as a level of response:

**Level 3 (7–8 marks)**

Candidates will address both aspects of the question and discuss/consider different advantages/disadvantages.

The issues raised will be justified. There will be a reasoned conclusion.

The information will be relevant, clear, organised and presented in a structured and coherent format.

Specialist terms will be used correctly and appropriately.

**Level 2 (4–6 marks)**

Candidates will address both aspects of the question and discuss/consider different advantages/disadvantages although development of some of the points will be limited to one side of the argument.

There may be a conclusion.

For the most part, the information will be relevant and presented in a structured and coherent format.

Examples will be given and will be mostly appropriate.

Specialist terms will be used appropriately and for the most part correctly.

**Level 1 (1–3 marks)**

Candidates may only address one side of the argument, and give basic advantages or disadvantages.

Answers may be simplistic with little or no relevance.

**Level 0 (0 marks)**

Response with no valid content

**Examples**

Filters are easier to create using database software...

...such as names of students matching a criterion...

...e.g. passing an exam/born in a certain year

Queries can be saved using database software...

...for ease of use with updated data such as new students attending school

Calculated fields can be difficult to create using database software...

...such as calculating ages from date of birth

Easier to create complex formulae in spreadsheets...

...such as nested ifs for determining if a student has passed a number of modules in a course

Can use more functions in spreadsheets...

...such as countif to count the number of students passing an exam

Charts are easier to produce using spreadsheet software...

...to show progress of students

Repeated data can be easier to enter using spreadsheet software

Fields easier to name and query using database software

Spreadsheets are easier to use to model different scenarios...

...such as number of students passing an exam

Can only create a relational database using database software

Allow justified examples of use of database or spreadsheet software

[8]