**INFORMATION AND COMMUNICATION TECHNOLOGY** **0417/13**

Paper 1 Written **May/June 2016**

MARK SCHEME

Maximum Mark: 100

**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.

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This document consists of **8** printed pages.

**1 (a)** Keyboard [1]

**(b)** Mouse [1]

**(c)** Temperature sensor [1]

**(d)** Joystick [1]

**2**

|  | Email (✓) | Fax (✓) |
|--|-----------|---------|
| 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**

|  | TRUE (✓) | FALSE (✓) |
|--|----------|-----------|
| 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]

**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 <u>type in one name</u> to send an email to several recipients at once          [1]


 **(e)**  A file that is sent attached to/with the email                               [1]

**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]

**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/overfill 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]

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 photographics 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]

**(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]

**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]