

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

**MARK SCHEME for the May/June 2015 series**

**0417 INFORMATION AND COMMUNICATION  
TECHNOLOGY**

**0417/13**

Paper 1 (Written), maximum raw mark 100

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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**1 (a) Two from:**

Touch screen  
 Microphone  
 (Push) button  
 Camera [2]

**(b) One from:**

(Flash) memory card reader [1]

**(c) Three from:**

Send emails  
 Send texts  
 Access website and send secure message [3]

**2**

<b>Use</b>	<b>MICR</b> ✓	<b>Bar code reader</b> ✓	<b>OMR</b> ✓	
Inputting exam answers from a multi choice test paper			✓	[1]
Inputting the account number from the bottom of a cheque	✓			[1]
Inputting the ISBN from the back of a book		✓		[1]
Inputting pencil marks from a school register			✓	[1]

**3** Computer hardware is the collection of physical components that make up a computer system/physical parts of a computer that can be touched [1]

Examples of hardware are the monitor, mouse, keyboard, computer data storage, hard disk drive, graphic cards, sound cards, memory, motherboard, CPU [1]

Computer software is made up of the instructions that can be stored and run by hardware/ any set of machine-readable instructions/software directs a computer's processor to perform specific operations/programs that control the computer system [1]

Examples of software are spreadsheet software, data handling software, word processing software, DTP software, presentation software, control software, measuring software, operating system, anti-virus software [1]

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4

	<b>Verification</b> ✓	<b>Validation</b> ✓	<b>Neither verification nor validation</b> ✓	
Data is entered by two different operators	✓			[1]
Data is checked to see if it is present		✓		[1]
Data is checked to make sure it is correct			✓	[1]
Data entered is checked to see if it matches data on the source document	✓			[1]

5 (a)

The type of processing used for updating bank accounts at ATMs is called **online** [1]

(b)

The type of access used on a magnetic tape is called **serial** [1]

(c)

The type of software which is used to create printed magazines is called **DTP** [1]

6 **Two** from, descriptions of: [2]  
 e.g.:  
 Optical fibre broadband  
 Increased bandwidth  
 Fourth generation mobile telecommunications

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- 7 Safety issues are usually caused by accidents [1]  
Health issues are those caused by continuous use of computers [1]

**Max four from:**

*Health issues are caused by-*

**Max three** from:

- Bad posture
- Incorrect positioning of equipment
- Not taking regular breaks
- Continuously staring at a monitor
- Repetitive clicking/typing

*Safety issues are caused by –*

**Max three** from:

- Having trailing wires
- Overloading sockets
- Allowing drinks near equipment
- Placing heavy equipment in an unsafe position on a table/desk [4]

- 8 (a) REPEAT 6 (3) should be REPEAT 5 [1]

- (b) END REPEAT is missing after RIGHT 72 (5) [1]

- PENUP is missing before BACKWARD 80 (6) [1]

- PENDOWN is missing after BACKWARD 80 (6) [1]

- REPEAT 4 is missing before RIGHT 90 (7) [1]

- 9 (a) **Two** matched pairs from:

Number pad/touch screen/remote control  
For the user to input the required temperature

Temperature sensor  
To input current temperature of the room/office [4]

(b) **Four** from:

- Microprocessor receives temperature from temperature sensor
- Microprocessor stores required temperature/19 as preset value
- Compares temperature from sensor to pre-set temperature/19
- If temperature is lower than preset value/19 microprocessor sends a signal to the actuator...  
...to turn heater on
- If higher than preset value/19 microprocessor sends a signal to turn heater off
- Wait set period of time before looping/process is continuous [4]

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**10 Three from:**

- Can act as a web server
- Can act as a buffer between internet and LAN
- Server passes on requests to the internet
- Passes the requested web pages to individual computers
- Can cache/store the webpages
- Subsequent requests for that/those web page(s) are responded to more quickly
- Can be used to monitor internet usage [3]

**11 (a) Field**

- one item of information [1]
- name/address/phone number/date of birth/tutor group/student id [1]

*File*

- a collection of records [1]
- all the students names, addresses, phone numbers, dates of birth, forms, student ids [1]

*Record*

- A collection of fields [1]
- All the information about one student/More than one of: name, address, phone number, date of birth, tutor group of one student, student ids [1]

**(b) Three from:****One mark for:**

The key field in a database of student records would be the student id

**Two from:**

- A field which contains unique data
- It is used to identify the record
- Used to create relationships between tables [3]

**12 (a) Range check – two from:**

Checks that data lies within a set range

In this database a range check could be performed on the Number\_of\_passengers or Ticket\_prices fields

Number\_of\_passengers should be in the range 135 to 375/Ticket\_prices have to be in the range \$500 to \$1200

**Format check – two from:**

Checks that data follows a set format

The Flight\_number is in a specific format

The Flight\_number must be two letters followed by three digits

**Length check – two from:**

Data must be a specific length – no more no less

Length check could be carried out on Departure\_Airport\_Code or Destination\_Airport\_code, Departure\_Airport\_Code/Destination\_Airport\_code must be exactly three characters [6]

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- (b) Text data- Flight\_number/Departure\_Airport\_Code/Destination\_Airport\_code [1]  
 Numeric data - Number\_of\_passengers/Ticket\_prices [1]

**13 (a) Four from:**

This formula searches for values in the range A1:A6...  
 ...which match the criterion >29  
 It totals the values...  
 ...in the corresponding cells of the SUM range...  
 ...B1:B6. [4]

- (b) >31<35 is not a valid logical test [1]

=SUMIF(D2:D10,">31",F2:F10) [1]  
 – (minus sign) [1]  
 SUMIF(D2:D10,">=35",F2:F10) [1]

**14 (a) Six from:**

Biometric methods use unique data  
 User ids and passwords can be copied/stolen/forgotten  
 Cannot copy biometric data  
 Only the person with particular biometric features can access the network  
 Anybody who has the password can access a network

Max **three** from  
 Fingerprints can be used to identify an individual  
 Retina scans can be used to identify an individual  
 Facial characteristics can be used to identify an individual  
 Voice recognition software can be used to identify an individual [6]

- (b) **Three** from:

The necessary software/equipment is more expensive to purchase  
 Takes longer to match data  
 If individual gets ill/background noise can make voice unintelligible to system  
 With certain illnesses retina scans stop working  
 Injuries to fingers can cause biometric device to fail to recognise you.  
 Could be wearing contact lenses which would stop retina scan working [3]

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**15 Six from:**

## Advantages

- Less likely to trip over cables
- Easier to relocate computers
- Cheaper as you don't have to buy cables
- Adding devices/computers to network is easier

## Disadvantages

- Limited area of network
- Strength of signal is weaker
- Physical obstacles can interfere with signal/can cause disconnection

One mark is available for a reasoned conclusion.

[6]

**16 (a) Six from:**

- Computer database is searched for matching departure airport
- Computer database is searched for matching arrival airport
- If flight on correct date found
- Search if seats/tickets available
- If so flags seat as booked
- Reduces number of seats/tickets available by one
- e-ticket details are output
- e-ticket details sent by travel agent to customer

[6]

**(b) Three from:**

- e.g.:
- Theatres
- Cinemas
- Football clubs/stadia
- Holiday booking company

[3]

**17 Three matched pairs from:**

## Sound

Spoken introduction by head/voiceover the presentation/background music/school choir/band/orchestra

## Animation

Text effects/cartoon representing school activities

## Video

Introduction by head/school play/choir/band/orchestra/sports activities

## Hyperlinks

Move to another page in the website

[6]