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

Use	MICR ✓	Bar code reader ✓	OMR ✓	
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]

4

	Verification ✓	Validation ✓	Neither verification nor validation ✓	
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:
e.g.:
Optical fibre broadband
Increased bandwidth
Fourth generation mobile telecommunications [2]

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 <u>required</u> 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]

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]

   (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]

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
<u>Limited </u>area of network
Strength of signal is <u>weaker</u>
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]