

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

MARK SCHEME for the May/June 2012 question paper
for the guidance of teachers

**0417 INFORMATION AND COMMUNICATION
TECHNOLOGY**

0417/12

Paper 1 (Written), maximum raw mark 100

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- 1 A Laser printer [1]
 B Speakers [1]
 C CRT Monitor [1]
 D Plotter [1]

- 2 **buzzer** **DVD R** joystick [1]
magnetic tape **plotter** touch pad [1]

3

	True	False
Measuring software is used to monitor physical variables	✓	
Presentation software is used to create models		✓
Laptops can be used even when not plugged in to an electricity socket	✓	
Control software is used to create slide shows		✓
A graph plotter is used to print newsletters		✓

[5]

4

	Abnormal	Normal
101	✓	
21		✓
thirty	✓	
99		✓

[4]

5

	Blog	Wiki
Usually in some form of chronological order	✓	
Usually many contributors and authors		✓
Usually personal	✓	
Postings tend to be short in length	✓	

[4]

- 6 To store a high definition movie → Fixed hard disc
 To store school work to use at home → Blu-ray disc
 To store server backups → Pen drive
 To store an online database → Magnetic tape [4]

7 Four instructions and four paired meanings from:

INSTRUCTION	MEANING
FORWARD <i>n</i>	Move <i>n</i> mm forward
BACKWARD <i>n</i>	Move <i>n</i> mm backward
LEFT <i>t</i>	Turn left <i>t</i> degrees
RIGHT <i>t</i>	Turn right <i>t</i> degrees
REPEAT <i>n</i>	Repeat the following instructions <i>n</i> times
END REPEAT	Finish the REPEAT loop

[8]

- 8 (a) A light sensor..... is used to input data in a computer controlled greenhouse.
- (b) An optical character reader..... is used to input text to a computer ready for processing.
- (c) A bar code reader..... is used to input numbers from products at a POS terminal.
- (d) A web camera..... is used to input moving pictures from a fixed position into a computer
- (e) A light pen..... is used for drawing applications where a graphics tablet might be too big [5]

9

Sound	✓
Bullets	
Animation	✓
Serif fonts	
Graphs	
Video	✓

[3]

10 **Six** from:

Symptoms are entered using the user interface
 User interface displays questions...
 ...based on previous responses
 User answers questions using user interface
 inference engine compares symptoms
 compares symptoms with those in the knowledge base
 compares symptoms using rules base...
 ...matches of symptoms are found
 User interface/screen displays possible diagnoses/illnesses/probabilities

[6]

11 **Six** from:

The customer is asked to type in their PIN
 The (ATM) checks to see if the card is valid
 The customer is asked which language/currency they require
 The bank account details are read from the chip
 Customer is asked if they want a receipt
 The typed PIN number is compared with that stored in the chip
 If they are the same the transaction proceeds
 If they are not the same the customer is asked to re-enter PIN
 If three failed attempts transaction rejected and card withheld
 The customer is asked which service is required
 The customer selects required service (cash)
 The customer is asked how much money they want to withdraw
 The customer's account is checked to see if it has sufficient funds
 The amount is checked against the card limit
 If there are sufficient funds (and the amount is within the card limit) the transaction is authorised/if
 not transaction is rejected
 The amount is deducted from the customer account
 The bank notes are issued
 The card is returned (by the computer)
 If required receipt is printed.

[6]

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12 (a) Three from:

- Temperature sensor
- Infra red sensor/Movement sensor/camera/motion sensor
- light sensor
- Pressure sensor/pad
- Contact switch
- Sound sensor/microphone
- key pad/touch screen
- Biometric devices

[3]

(b) Five from:

- Microprocessor checks input from the user is authentic
- Microprocessor (continually) monitors sensors.
- If light/infra red sensor reading changes
- If movement sensor activated...
- If contact switch activated...
- If pressure greater than pre-set value.....
- If sound greater than pre-set value.....
- If temperature greater than pre-set value....
- Microprocessor sends signal to sound alarm
- Microprocessor sends signal to flashing light/house lights.
- Microprocessor sends signal automatically to police
- Microprocessor automatically sends message/calls/texts owner

[5]

13 (a)

Field name	Data type
<i>Title</i>	Text
<i>Film length</i>	<i>Numeric</i>
<i>Date/Year of release</i>	Date
<i>Format/Blu ray/DVD</i>	<i>Boolean</i>

[6]

(b) Two from:

- If field length is too long storage space is wasted...
- Greater memory requirements increases cost
- Takes longer to type in data

If it's too short not all data within the field will be entered

If it's too short abbreviations would be needed making the field contents difficult to interpret

[2]

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(c) User documentation [1]

Two from:

How to load software/ run software/install software

How to save a file

How to search

How to sort

How to print

How to add records

How to delete/edit records

Input format or example

Output format or example

Hardware requirements

Software requirements

Sample runs/test runs

Limitations of the system

Troubleshooting guide/contact details/help line/FAQs

Error messages/handling

Tutorials

[2]

Technical documentation

[1]

Two from:

Program listing

Name of program language

Flowchart/algorithm

List of variables

File structure

Purpose of the system/program

Purpose of the program

Input format or example (only if not mentioned in user documentation)

Output format or example (only if not mentioned in user documentation)

Hardware requirements (only if not mentioned in user documentation)

Software requirements (only if not mentioned in user documentation)

Sample runs/test runs (only if not mentioned in user documentation)

Limitations of the system (only if not mentioned in user documentation)

Known bugs

Validation routines

[2]

14 Two advantages from:

More likely to have it with you

Can access internet from greater number of places

Easier to use while on the move

Two disadvantages from:

Display is more difficult to see/display screen is smaller

Keyboard is smaller so more difficult to type

Some sites do not have full facilities for mobile phone

[4]

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- 15 (a) Three** from:
 It looks through A8 to A18
 Cell B2 contains the code BRA
 Checks whether A8 to A18 contains the code BRA/contents of B2
 Counts all the cells where there is a match
 Produces the answer 4. [3]
- (b) 2** [1]
- (c) Three** from:
 Checks whether A8 to A18 contains the code BRA/cell B2
 Where there is a match adds up...
 ...all the corresponding cells in B8 to B18
 Produces the answer 48 [3]
- (d) 31** [1]
- (e) three** from:
 Put the formula =SUM(D2:D5) in cell D6
 Put the formula =SUM(B8:B18) in cell B19
 Put the formula =D6-B19 in cell D7/ suitable IF formula in cell D7/compare the values of D6 and B19 they should be the same [3]
- (f) Absolute cell referencing is being used** [1]
- Two** from:
 When formulae are replicated.
 ...some cell references must remain unchanged
 This makes sure they will stay consistent when replicated [2]
- 16 Three** from:
 A piece of program code
 Which replicates itself
 Fills up hard disc making it unusable
 Deletes data/changes data (from hard disc)
 Makes software/operating system unusable [3]
- 17 Six** from:
 Internet is not regulated
 Danger of accessing inappropriate websites.
 Can take long time to find required information
 Have to have internet connectivity/computer/phone line/modem
 Internet tends to be up to date
 Internet has vast amounts of information/wide range of information
 Faster to search only if referring to use of search engine
 Can access biased/inaccurate/unreliable websites
 Lack of expertise can lead to inefficient searching
 Easy to plagiarise information [6]