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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UNIVERSITY of CAMBRIDGE
International Examinations

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		✓

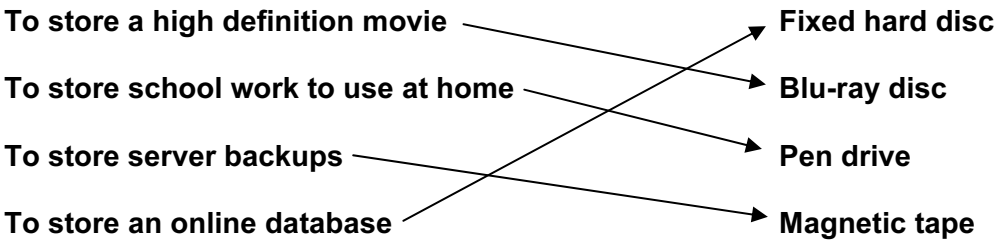
[4]

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



[4]

7 **Four** instructions and **four** paired meanings from:

INSTRUCTION	MEANING
FORWARD *n*	Move *n* mm forward
BACKWARD *n*	Move *n* mm backward
LEFT *t*	Turn left *t* degrees
RIGHT *t*	Turn right *t* degrees
REPEAT n	Repeat the following instructions n 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]

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
Title	Text
Film length	***Numeric***
Date/Year of release	Date
Format/Blu ray/DVD	***Boolean***

[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]

(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]

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]