

**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
International General Certificate of Secondary Education

**MARK SCHEME for the October/November 2011 question paper  
for the guidance of teachers**

**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.

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- 1 A Graphics tablet (1)  
 B Magnetic stripe reader (1)  
 C Remote control (1)  
 D Touch pad (1) [4]

- 2 **CD RW (1)**      **Graph plotter**      **Hard disc (1)**  
**Keyboard**      **Mouse**      **PIN** [2]

3

	True	False	
Direct changeover needs two sets of workers to be employed		✓	(1)
Parallel running means that the original system is still available	✓	✓	(1)
Phased implementation is implementing the system in parts	✓		(1)
Parallel running is the cheapest form of implementation		✓	(1)

[4]

- 4 (a) The most suitable storage medium for making backups of data held on a network server is a **magnetic tape** [1]  
 (b) Data about the details of a PIN are stored on a bank card on a **chip** [1]  
 (c) An optical disc which can have data updated is a **DVD RW** [1]  
 (d) Details of a product are scanned at a POS using a **bar code reader** [1]

- 5
- |                          |   |  |
|--------------------------|---|--|
| Word processing software | → | Finding specific web sites                         |
| Measuring program        | → | Storing student records                            |
| Presentation software    | → | A head teacher writing a letter to parents         |
| Search engine            | → | Monitoring temperature in a science experiment     |
| Database                 | → | Producing a multimedia slide show about the school |
- [5]

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6 **Two** matched pairs from:

Companies selling their software/games  
 Cheap method of production/quick to access data

Making personal backups/transferring data (from one computer to another)  
 Cheap to buy/quicker to retrieve data/expensive to buy tape drives

Downloading/copying films/music  
 Faster/easier to access individual scenes/tracks/better or higher quality

Two for each matched pair – 4 marks maximum

[4]

7 **Three** matched pairs from:

INSTRUCTION	MEANING
FORWARD $n$	Move $n$ mm forward
BACKWARD $n$	Move $n$ mm backward
LEFT $t$	Turn <u>left</u> $t$ degrees
RIGHT $t$	Turn <u>right</u> $t$ degrees
PENUP	Lift the pen
PENDOWN	Lower the pen
REPEAT $n$	Repeat the <u>following</u> instructions $n$ times
END REPEAT	Finish the REPEAT loop

1 for instruction  
 1 for meaning

[6]

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- 8 Three from:**  
 Text messaging  
 Sending a photograph (as soon as it has been taken)  
 (Sending) emails  
 Using social networking sites  
 Creating blogs [3]

**9 (a)**

Pulse rate	✓	(1)
Room temperature		
Humidity		
Body temperature	✓	(1)
Light		
Blood pressure	✓	(1)

[3]

- (b)** Physical variables are analogue data [1]  
 Computers can only work with digital data [1]

**(c) Three from:**

- Can monitor continuously/readings can be taken more frequently  
 Nurses can get tired and forget to take readings/nurses are so busy they might not be able to take readings regularly  
 Computer readings are more accurate/human errors are reduced  
 More than one variable can be measured at any one time  
 Results can be analysed automatically/charts are produced automatically  
 Automatic warnings can be generated/faster to react  
 Nurses are free to do other tasks  
 Reduces chances of nurses being exposed to contagious diseases  
 Reduced cost of wage bill [3]

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10 (a) 7 [1]

(b) 5 [1]

(c) Margarine [1]

(d) Text/alphanumeric [1]

(e) **Five** from:  
 The stock file is searched  
 Until a match is found with the entered bar code number/product id number  
 The number in stock of the matching record is read  
 Three is subtracted from the number in stock  
 The number in stock is compared with the re-order number  
 It will now be equal to the re-order number  
 More goods are automatically re-ordered  
 The new value of number in stock is written back to the file [5]

11 **Two** matched features and uses from:

Animation

To move images or text

Video

Videos of school plays/performances/sports events

Sound

Background music/school concerts/voiceovers/sound effects when changing/opening a slide

Hyperlinks

To link to other slides

Slide transitions

To keep the viewer's attention [4]

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- 12 (a) Two** from:  
 All machines can access internet at the same time  
 Only one printer is needed  
 Only one scanner is needed  
 Data can be shared between computers/data can be accessed by one computer from another more easily  
 Software can be shared  
 All computers can access the internet through one connection  
 Network games can be played [2]
- 12 (b) Two** from:  
 Greater risk of hackers  
 Greater risk of viruses  
 Internet usage by children could be more difficult to monitor  
 The significant cost of extra equipment [2]
- 13 (a) Two** from:  
**User ID and one of password/PIN/memorable data** – password has to be entered before access is gained/password can be changed frequently to avoid hackers guessing them/unsuccessful logins can throw you out of the system  
  
**Magnetic stripe/smart card/electronic key/bar code system/ID card/Dongle**  
 Prevents people without cards accessing system  
  
**Biometric data**  
 Fingerprint/retina/iris/face/voice recognition used as input/biometric data is difficult to replicate/is unique [2]
- (b) Two** from:  
 Key needed to encrypt  
 Data is jumbled up  
 Key must be known to decrypt it  
 Prevents people from understanding data/reading data [2]

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- 14 (a)** Interview [1]  
 Can change questions in light of previous answers/interviewer can detect body language [1]
- Questionnaire [1]  
 Quicker to get every worker's response/easier to collate responses [1]
- Examining documents [1]  
 Can see exact details of inputs and outputs [1]
- Observation [1]  
 Easier to see data flow/can get more accurate overview of whole system [1]
- (b) Four from:**
- Field name
  - Field type
  - Key field
  - Field length
  - Validation check/rules [4]
- (c) Direct changeover**
- Two from:**
- Cannot afford to pay two sets of workers
  - Would give him immediate benefits
  - Does not need to set up pilot scheme – small company [2]
- 15 Four from:**
- A graphical user interface has icons to help the user identify applications/folders
  - A GUI has a system of menus to help the user choose options
  - A GUI has windows to enable user to multi task
  - A GUI has a pointer/pointing device to help navigate around the screen/to click to open files/software
  - A CLI only allows you to type in commands
  - With CLI syntax has to be precise
  - Commands difficult to edit once entered
  - Have to learn a lot of commands exactly/have to be familiar with the commands [4]

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- 16 (a) Two** from:  
ISP contract  
Router/modem [2]
- (b) Four** from:  
Less danger of mugging  
Can shop when shops are closed  
Doesn't have to spend time queuing/going around different shops/travelling to shop/can compare prices at different shops more easily  
Can look at wide range of shops  
No travelling expenses/don't waste fuel  
Easier to search and find what you're looking for [4]
- (c) Four** from:  
Lack of socialising/social contacts  
Hackers may intercept data and defraud customer/steal identity  
Deprived of personal touch  
Phone bills can increase  
Without broadband other family members cannot use the phone  
Cannot see/feel goods in reality/goods delivered may not be the same standard as those ordered  
More vulnerable to phishing/pharming  
More vulnerable to viruses  
Goods may not be delivered/can't check the standard of goods before buying  
May be hidden costs such as delivery charges [4]
- 17 Four** from:  
Customer is asked if they want a receipt  
The 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 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 [4]



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**18 Two** from:

If the airplane crashed you wouldn't need to replace it – saving money

If the airplane crashed nobody is injured

It is easy to recreate extreme weather conditions

It is easy to create unusual flying conditions/any situation

Can recreate mechanical/computer failure from previous real situations [2]

**19 Two** matched pairs from:

Phishing [1]

Hackers send an e-mail (appearing to be from the bank) asking for a customer's (account) details/includes a website link so customers details are gathered [1]

Pharming [1]

Installing malicious code on a pc or server causing users to access websites which look authentic/websites are used to gain bank details/redirects a genuine website's traffic to hacker's website [1]