**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
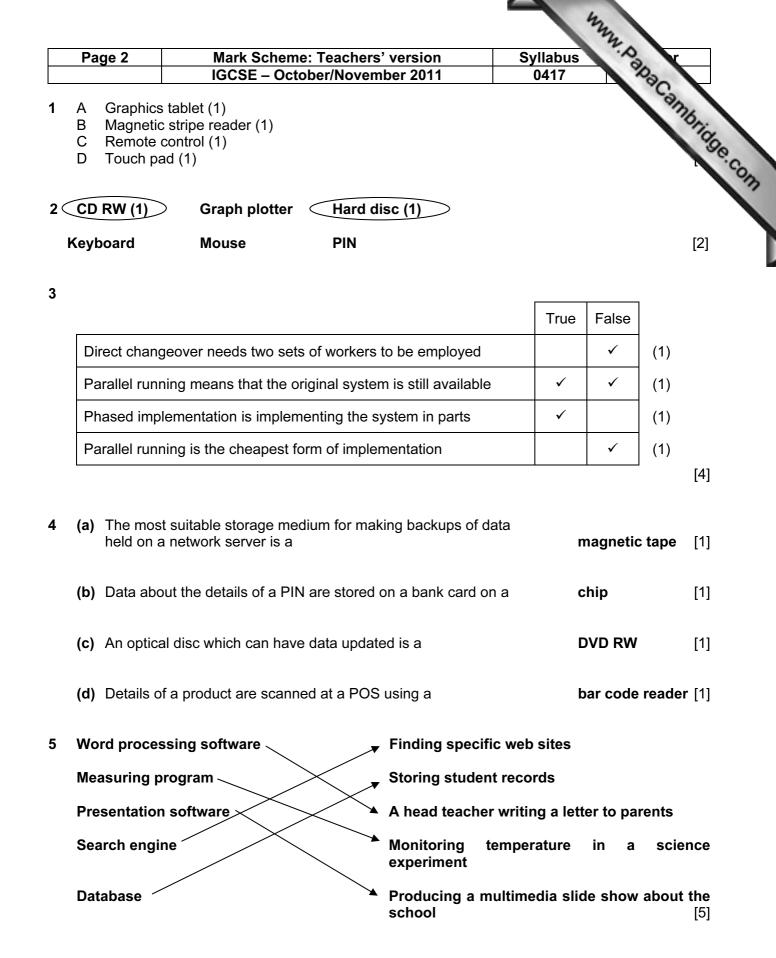
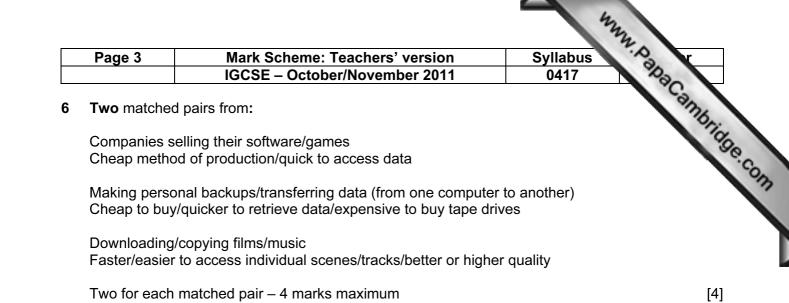**0417/13**     Paper 1 (Written), maximum raw mark 100

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.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

* Cambridge will not enter into discussions or correspondence in connection with these mark schemes.

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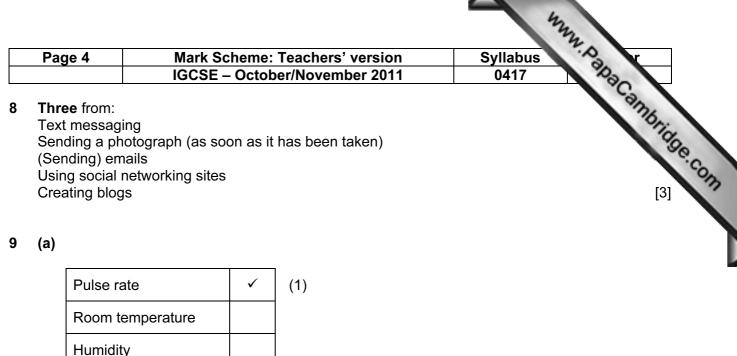
1  A  Graphics tablet (1)
   B  Magnetic stripe reader (1)
   C  Remote control (1)
   D  Touch pad (1)

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]

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
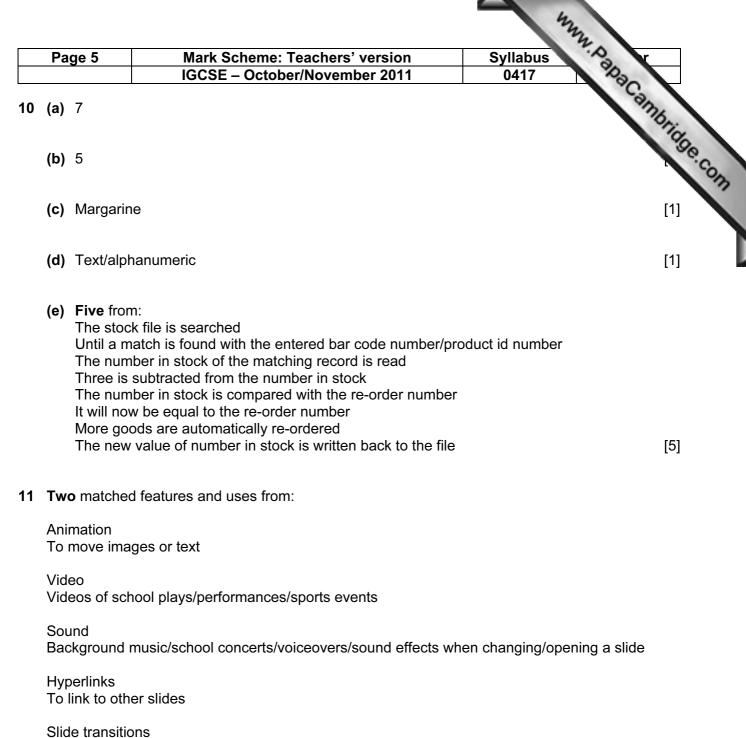1 for meaning                                                                  [6]

**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]

**10 (a)** 7

**(b)** 5

**(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]

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]

**14 (a)** Interview
Can change questions in light of previous answers/interviewer can detect body langua...

Questionnaire
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]

16 (a) **Two** from:
ISP contract
Router/modem

(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]

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]