GCSE

Information and Communication Technology

Summer 2010

Mark Schemes

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NORTHERN IRELAND GENERAL CERTIFICATE OF SECONDARY EDUCATION (GCSE) AND NORTHERN IRELAND GENERAL CERTIFICATE OF EDUCATION (GCE)

MARK SCHEMES (2010)

Foreword

Introduction

Mark Schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of 16 and 18-year-old students in schools and colleges. The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes therefore are regarded as a part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

The Council hopes that the mark schemes will be viewed and used in a constructive way as a further support to the teaching and learning processes.

CONTENTS

General Certificate of Secondary Education
2010

Information and Communication Technology

Full Course

Paper 1

Foundation Tier

[G5801]

MONDAY 21 JUNE, MORNING

MARK
SCHEME

1 **(a) B** Online and batch processed

(b) D It carries out hardware checks and loads the operating system into main memory from the hard disc

(c) B Teleworking means more travelling for employees

(d) D Immediate transfer of funds

(e) B ROM

(f) B Allows data subjects to view all data held about them and have it corrected if it is incorrect

(g) C Ensures that data is stored securely

(h) D The inclusion of sound and navigation buttons

(i) D External Hard Drive

(j) C Computer program used to model a real life situation   10

2 **(a) TWO** from:
A template is a standard layout/plan for a document [1]
Determines the basic structure for the document [1]
The user fills the template with information in predefined positions [1]
A suitable example e.g. headed note paper/invoice/fax header [1]
Can be edited [1]   [2]

(b) ONE from:
Template settings can be used over and over again [1]
Templates ensure that all documents produced have a standard presentation/structure/layout [1]/more professional [1]
Templates can be made available to all users of the system [1]
Faster than retyping information [1]
Can be easily customised/modified [1]   [1]

(c)

Mailmerge	✓ Uses a database
	☐ Provides step by step instructions
	☐ Helps users complete tasks
	✓ Requires fields to be added to the main document
	☐ Allows users to add new words
	☐ Helps ensure spelling is correct
	[2]
Wizard	☐ Uses a database
	✓ Provides step by step instructions
	✓ Helps users complete tasks
	☐ Requires fields to be added to the main document
	☐ Allows users to add new words
	☐ Helps ensure spelling is correct
	[2]
Thesaurus	☐ Uses a database
	☐ Provides step by step instructions
	☐ Helps users complete tasks
	☐ Requires fields to be added to the main document
	✓ Allows users to add new words
	✓ Helps ensure spelling is correct
	[2]

more than 2 ticks [0] marks

9

3 Data logging involves the use of a **SENSOR** to **CAPTURE** data. The time taken between each reading is called the data logging **INTERVAL**. In this case a **TEMPERATURE** sensor would be appropriate.

[4]

4 (a) ONE from:
Pictures can be edited/stored/deleted on camera/on computer [1]
Pictures can be previewed [1]
Time/date can be added to picture [1]
Film is not required [1]/No need for developing [1]
View on TV [1]
Can take a video [1]

[1]

(b)

Statement	Tick (✓)
Most touch screens show blurry images.	
A touch screen can be used as an input device.	✓
A touch screen requires a high level of ICT knowledge to use.	
A touch screen can be used as an output device.	✓

more than 2 ticks [0] marks

[2]

(c) TWO from:
Access the Internet (including examples e.g. e-mail) [1]
Buy services/films/products (including examples of buying using remote control/keyboard) [1]
Vote [1]/Interact directly with TV programmes [1] – e.g. – pause live TV/change viewing angle/enter competitions
Play games [1]

[2]

5 **(a)** Scan [1]/scanner [1]/scanning [1]/use digital camera [1]   [1]

<div style="text-align:right"></div>

(b) Copyright [1], Designs and Patents (Act) [1]   [2]

(c) **(i)** A program/file/software [1] which is designed to damage a
computer system [1]/corrupt files/attack the system/damage
files or an example of damage [1]   [2]

(ii) **TWO** from:
Buy/install antivirus software/virus scanner/virus detection/virus
protection (accept also names of products known to be antivirus
software e.g. Norton) [1]
Scan e-mails/attachments/files/documents etc./do not open emails
with attachments [1]
Use a firewall [1]
Update virus software [1]
Do not download from unknown source/potentially harmful sites
Run virus checks/scans/scan the computer system/run computer
checks [1]   [2]

(iii) Computer Misuse (Act)   [1]   8

Question 5 – Quality of Written Communication
[3] Highly accurate spelling and punctuation. A good range of technical terms.   3
[2] Accurate spelling and punctuation. Some technical terms used.
[1] Reasonably accurate spelling and punctuation. Limited range of technical
terms used.
[0] Question not attempted.

6 **(a)** **ONE** from:
  Don't have to leave house [1]
  Better choice [1]
  Delivery to home [1]
  Special offers [1]
  Cheaper [1]   [1]

  (b) **ONE** from:
  He can read it immediately [1]/available immediately [1]
  Not affected by postal strike/speed of post/cannot get lost in post [1]
  No postal charges [1]
  Read it on electronic media [1]
  Repeatedly download [1]
  No shop visit required [1]/can be purchased from any location [1]
  Environmental advantage   [1]

  (c) **ONE** from:
  Prevents unauthorised login/hacking/fraud
  Ensures only authorised users can access the account [1]
  Provides security for user account details [1]
  Passwords prevent unauthorised login [1]   [1]

  (d)

Statement	Tick (✓)
Hacking involves placing data on the Internet	
Hacking involves unauthorised access to the system	✓
Hacking breaks the Data Protection Act	

                                                                 [1]

4

Question 6 – Quality of Written Communication
[2] Accurate spelling and punctuation. Some specialist terms used.
[1] Reasonably accurate spelling and punctuation. Limited range of specialist terms used.
[0] Question not attempted.

2

7 (a)

Filename	Statement				
Assignment 1	has been created by a word processor	has been created by a graphics package	(has been created by presentation software)	has been created by a spreadsheet package	is a folder
Assignment 2	(has been created by a word processor)	has been created by a graphics package	has been created by presentation software	has been created by a spreadsheet package	is a folder
Assignment 3	has been created by a word processor	has been created by a graphics package	has been created by presentation software	(has been created by a spreadsheet package)	is a folder
database	has been created by a word processor	has been created by a graphics package	has been created by presentation software	has been created by a spreadsheet package	(is a folder)

[3]

(b) (i) Backup is a copy of existing (original) files/data   [1]

    (ii) In case the original data/file/work/documents/folders is lost/
        deleted/corrupted/damaged   [1]

    (iii) ONE from:
        High storage (space) capacity [1]
        Portable [1]
        Physically robust/not easily damaged [1]   [1]

8 **(a)** **TWO** from:
PIN protection [1]
<u>NOT</u> chip and PIN
Data can be changed/updated [1]
(Smart chip) holds more data [1]
(Smart chip technology) is more secure [1]/better security [1]
Small size of the chip (can fit easily on card) [1]   [2]

(b)

Data on a magnetic stripe can be read by humans	Data on a magnetic stripe can be damaged by magnetic fields	Magnetic stripes can hold very large quantities of data	Data on a magnetic stripe must be read by a special reader

[2]

(c) **(i)** Automatic/Automated teller/telling machine   [1]

(ii) **TWO** from:
Change PIN [1]
Order Cheque Book [1]
Cash Withdrawal [1]
Top Up Mobile Phone [1]
Balance enquiry [1]
Mini statement [1]
Receipt [1]   [2]   7

9 (a) Wide Area Network [1]

(b)

Item	Explanation
Search Engine	☐ To upload and download files ☐ To display webpages ✓ To find webpages ☐ To get connected to the Internet ☐ To allow data transfer from his PC to the Internet
Web Browser	☐ To upload and download files ✓ To display webpages ☐ To find webpages ☐ To get connected to the Internet ☐ To allow data transfer from his PC to the Internet
Telecommunications link Note needs more than a telecommunication link to get connected to the Internet	☐ To upload and download files ☐ To display webpages ☐ To find webpages ☐ To get connected to the Internet ✓ To allow data transfer from his PC to the Internet

[3]

(c) (i) Internet Service Provider [1]

(ii)

An ISP would	Tick (✓)
Install software for the user	
Provide an email service	✓
Provide different bandwidth options	✓
Maintain the user's PC	

[2]

7

10 (a) World Wide Web [1] [1]

(b) (i) **ONE** from: (Emphasis on <u>clicked</u>)
Link/text/picture/icon which when <u>clicked</u> takes you to a different (web)site/(web)page/file **or** a different part of the Internet [1]
Links/connects to another page/site/document when <u>clicked</u> on [1]

(ii) **ONE** from:
Any of the buttons e.g. "About Us" [1]
Any of the e-mail links [1] [1] 3

11 (a) Any row/record correctly highlighted – no marks for multiple rows highlighted [1]

(b) 11 [1]

(c) (i) OrderID – Alphanumeric/Character/Text/String [1]

(ii) Collected – Boolean/Yes/No/Yes OR No/Text [1]

(d) query [1] 5

12 (a) Merged/Bold [1] [1]

(b) Currency [1]

(c)

Formula	Tick (✓)
=E15*F15	✓
=E15+F15	
=C15*D15	

[1]

(d) E17 [1]

(e) (i) B5:B16 [1] G5:G16 [1] instead of (:) – accept (–), (to), (,)
B6:B16 [1] G6:G16 [1] [2]

(ii) Heated Rollers [1] [1] 7

Definition	Term
Software which includes windows, icons, menus and pointers	**Graphical User Interface**
A device which allows the electronic transmission of paper documents	**Facsimile**
Communicating across a network using sound and images	**Video conferencing**
A method of making a file smaller in size	**Compression**
A method used to prevent websites and webpages from being accessed	**WEB FILTERING**
Sending an e-mail to recipients when they can only see their own details and not those of other recipients	**Blind Carbon Copy**
An output device which uses toner to place images on paper	**Laser Printer**
A storage medium which can only be read from	**CD-ROM**
A picture file which has not been optimised for use on the Internet	**Bitmap**
A method of placing files on the Internet	**Uploading**

[10]

10

14 (a)

Image	Effect
	Resize
	Crop
	Flip
	Rotate

[4]

(b)

Task	TV-Out	Hard Disk	Optical Drive	Wireless Enabled
Connecting to the wireless network				✓
Installing new software			✓	
Connecting to a TV	✓			
Storing coursework files		✓		

[4]

(c) (i) ONE from:
Can work on the move [1]
Know in advance they have 8 hrs [1]
Reference to the time it can be used without charging [1]
Employees can use the notebook without the need to "plug in" [1]
Long battery life means they can use it all day without
recharging [1]   [1]

(ii) ONE from:
Light weight therefore easy to carry around [1]
Portable [1]   [1]   10

                                     Total   **100**

**General Certificate of Secondary Education
2010**

Information and Communication Technology

Full Course

Paper 2

Foundation Tier

[G5802]

THURSDAY 24 JUNE, MORNING

MARK
SCHEME

1 (a) (i) The quality of image/graphic on screen/number of pixels making up the image on the screen/number of pixels the screen contains [1]

   (ii) More pixels better quality of image   [1]
        More pixels clearer image [1]

   (b) Correct drawing of landscape page format   [1]

   (c) Correct drawing of portrait page format   [1]

   (d) To transfer pictures to the frame easily/connect to another wireless device e.g. computer camera phone   [1]

   (e) Upload/download of pictures   [1]
       To store/save pictures [1]
       Portability of pictures [1]
       Transfer of pictures [1]

   (f)

Storage Device	Volatile/Non-volatile?
ROM Chip	Non-volatile
SD Memory Card	Volatile

                                                           [2]

   (g) Inkjet or coloured laser (must state colour laser) [1]   9

2 (a) Highlight more than 1 = 0 marks

Data Item	Error Message	Validation check
2001	Membership number must be between 1 and 2000	Range check Type check
@lexander	Member name must contain text only	Type check
18th May 2010	Date of birth must be entered dd/mm/yy	Format check
Part-time	Membership type must be 3 characters long	Length check
30	Members should be over 16 and under 25	Range check

                                                           [4]

(b) Any **TWO** from:
Data entered into system twice [1]
Comparison takes place [1]
Discrepancies reported [1]
Double entry [1]   [2]   6

3 **(a)** Asymmetric Digital Subscriber Line   [1]
Integrated Services Digital Network   [1]

(b) Advantage, transmit written or signed documents/get a hard copy of
document
Disadvantage, fax must be switched on or could be engaged
Fax must be attended/fax can be seen by others/not as secure/
must have a fax machine [1] environmental issues [1]   [2]

(c) https and padlock to be circled (more than 2 circles = 0 marks)   [2]

(d) Advantage (Any **ONE** from)
No need for (expensive) cabling/wires/additional devices can be
added/network easily expanded/can be used anywhere in the store [1]
Disadvantage (Any **ONE** from)
Slower communication speeds/interference from other wireless
networks/security considerations/Internet/network is slow/intermittent
performance/poor signal or coverage/lose connection/need to be a
specific distance from router   [1]   8

Question 3 – Quality of Written Communication
[2] Accurate spelling and punctuation. Some technical terms used.   2
[1] Reasonably accurate spelling and punctuation. Limited range of technical
terms used.
[0] Not attempted.

4 **(a) (i)** 4   [1]

(ii) 2   [1]

(b) Used to uniquely identify a record/a unique field   [1]

(c) Reduction in redundancy/increase in integrity/less storage space/
smaller file size/can create queries/reports from both tables   [1]

(d) All data stored on one table/file   [1]
data/tables/databases that are not linked

(e) Any **TWO** from:
Add logo to form
Add control buttons/macro buttons to form
Background graphics
Amend font/text colour/text size
Colour
Add a heading/title
Add instructions
Space information out well [2]

7

5 (a) Local Area Network [1]

(b) Any **TWO** from:
Peripherals can be shared [1]
Communication between users [1]
Software can be shared [1]
Data can be accessed from any station [1]
Increased security [1]
Share data/files [1]   Accept public files [2]

(c) (i)

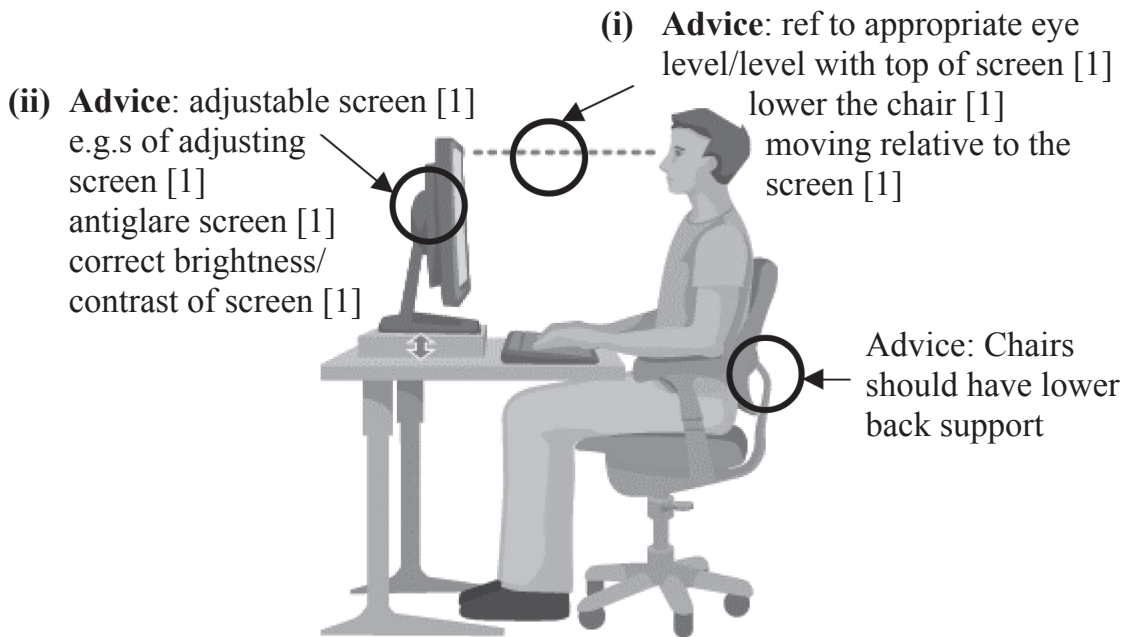| Storage media	Tick (✓)
Memory Stick	
DVD ROM	
Magnetic Tape	✓
External Hard Drive	✓

[2]

More than 2 ticks = 0 marks

(ii) Any **TWO** from:
Flood
Fire
Earthquake
Theft
Hacking
Viruses [2]

(d) so they can add users [1] manage users [1] manage peripherals [1]
manage security [1]
or examples of managing security [1]
e.g. keep files private/manage permissions e.g. no Internet/protect the network
monitor users [1] [2]

9

6 **(a)**

(i) Advice: ref to appropriate eye level/level with top of screen [1] lower the chair [1] moving relative to the screen [1]

(ii) Advice: adjustable screen [1] e.g.s of adjusting screen [1] antiglare screen [1] correct brightness/ contrast of screen [1]

Advice: Chairs should have lower back support

(http://www.codinghorror.com/blog/images/computing-ergonomics-monitor-position.png)

(b) Any **TWO** from:
No trailing cables [1]/extension leads [1]
Suitable temperature [1] (refers to room NOT computer)
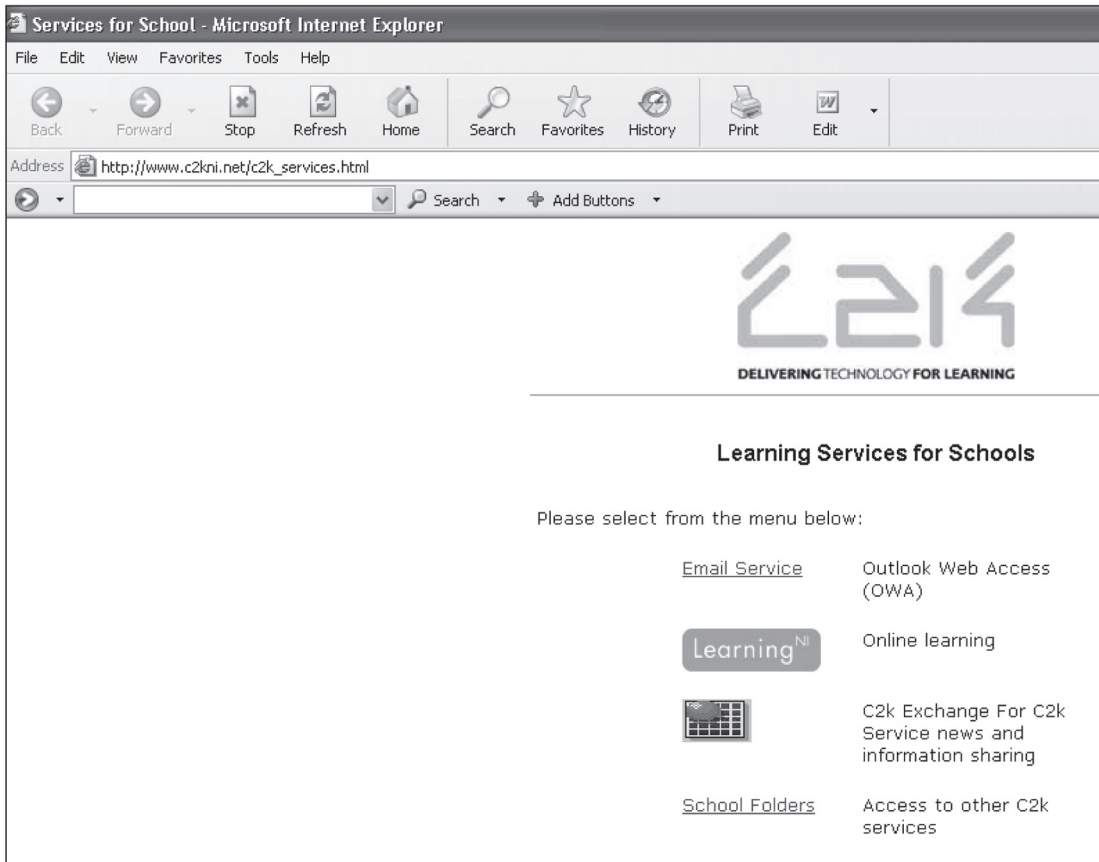Regular electrical checks [1]
Fire extinguishers [1] sprinklers [1]
No food or drink [1]
Switch computer off/log off correctly [1] [2]

4

7 **(a)** Hypertext Markup Language [1]

    (b) **(i)** Refresh button circled (no marks for more than 2 buttons circled) [1]

       (ii) History button circled [1]

© c2kni

      (iii) Allows you to access your homepage [1]

    (c) Uniform Resource Locator [1]   5

8 **(a)** Details of current meter readings are entered onto the system in one batch.
The current meter readings are then stored on a **Transaction file** [1].
This file is then merged with the old **Master file** [1]
and the customer's **bill** [1] is printed. [3]

    (b) Computers can be used for other tasks during the day/frees up processing time
Processing can be carried out unsupervised [1]

    (c) (Delay in processing) flights could be double booked if not done straight away
may be a delay in processing [1]   [1]   5

9 (a) (i) motion/movement [1]

(ii) temperature/heat/thermometer/thermistor [1]

(b) The temperature is recorded using a **Thermometer** [1].
The temperature reading is **Input** [1] into the system and
Processed [1] to see if it is below 20 degrees C or above 30 degrees C.
If the temperature is outside this range a signal is **Output** [1] to turn the
heat on or off. [4]

(c) 1 for any suitable example e.g. burglar alarm, microwave/skybox/
washing machine etc., water boiler, fridge, oven, security lights,
tumble dryer [1]

7

10 (a) Musical Instrument Digital Interface [1]

(b)

Advantage	Tick (✓)
The file quality will remain the same at all times	✓
The file can be played on any audio device	
The file can be edited with the correct software	✓
The file quality deteriorates over time	

More than 2 ticks = 0 marks [2]

(c) Any **ONE** from:
Computers only store data in digital format/Analogue cannot be
understood by the computer/cannot be stored on the computer/digital
device or e.g. of digital device [1]

4

Statement	Tick (✓)
Some games consoles can be connected to the Internet	✓
Virtual reality games are available on mobile phones	
All computer games can be bought in CD format	
Virtual reality games can now be found in some gaming arcades	✓

11 (a)

More than 2 ticks = 0 marks [2]

(b) Any **TWO** from:
Internet/on-line gaming [1] more realistic (NOT virtual reality) [1]
faster loading/refresh/startup [1]
Improvements in processing power
Improved graphics/better screen resolution [1]
Improvements in peripherals for interaction with game/wireless peripherals [1]
Greater control [1] improved sound [1] [2]

(c) **Health – Any TWO of**
Obesity [1] general lack of exercise [1] lack of fitness [1] inactivity [1] [2]
RSI [1] Backstrain [1] eyestrain [1]

6

12 (a) Entertainment device – any **TWO** from
mp4 [1] mp3 players [1] games [1] internet [1] radio [1] play/record music [1] play/record video [1] take photos [1] [2]

(b) Advice – any **TWO** from
Resolution/image quality/screen size [1] size and type of keyboard [1] additional memory cards [1] good battery life [1] bluetooth [1] wifi [1] WAP [1] 3G [1] lots of memory space/capacity [1] good quality camera [1] touch screen [1] good processor speed [1] good quality speakers/sound [1]. [2]

(c) Social (NO health issues) – any **TWO** from
poor written communication skills/poor verbal communication skills (listen to music instead of interacting with others)
Cyberbullying/bullying/anon text/prank calls [1] worldwide communication [1] intrusive nature [1] less face-to-face interaction/less socialising [1] anti-social behaviour [1] communicate at anytime [1] [2]

6

Question 12 – Quality of Written Communication
[2] Accurate spelling and punctuation. Some technical terms used.
[1] Reasonably accurate spelling and punctuation. Limited range of technical terms used.
[0] Not attempted.

2

	Total	**80**

Information and Communication Technology

Full Course

Paper 1

Higher Tier

[G5803]

MONDAY 21 JUNE, MORNING

MARK SCHEME

1 **(a) B** Online and batch processed

(b) D It carries out hardware checks and loads the operating system into main memory from the hard disc

(c) B Teleworking means more travelling for employees

(d) D Immediate transfer of funds

(e) B ROM

(f) B Allows data subjects to view all data held about them and have it corrected if it is incorrect

(g) C Ensures that data is stored securely

(h) D The inclusion of sound, the use of slide masters and the inclusion of navigation buttons

(i) D External Hard Drive

(j) C Computer program used to model a real life situation

10

2 **(a) TWO** from:
A template is a standard layout/plan for a document [1]
Determines the basic structure for the document [1]
The user fills the template with information in predefined positions [1]
A suitable example e.g. headed note paper/invoice/fax header [1]
Can be edited [1]   [2]

(b) ONE from:
Template settings can be used over and over again [1]
Templates ensure that all documents produced have a standard presentation/structure/layout [1]/more professional [1]
Templates can be made available to all users of the system [1]
Faster than retyping information [1]
Can be easily customised/modified [1]   [1]

(c)

Mailmerge	✓ Uses a database
	☐ Provides step by step instructions
	☐ Helps users complete tasks
	✓ Requires fields to be added to the main document
	☐ Can be customised to include new words
	☐ Helps ensure spelling is correct
	☐ Is responsible for text formatting
	[2]
Wizard	☐ Uses a database
	✓ Provides step by step instructions
	✓ Helps users complete tasks
	☐ Requires fields to be added to the main document
	☐ Can be customised to include new words
	☐ Helps ensure spelling is correct
	☐ Is responsible for text formatting
	[2]
Dictionary	☐ Uses a database
	☐ Provides step by step instructions
	☐ Helps users complete tasks
	☐ Requires fields to be added to the main document
	✓ Can be customised to include new words
	✓ Helps ensure spelling is correct
	☐ Is responsible for text formatting
	[2]

9

3 (a) Data logging involves the use of a **SENSOR** to **CAPTURE** data. The time taken between each reading is called the data logging **INTERVAL**. In this case a **TEMPERATURE** sensor would be appropriate. [4]

(b) ONE from:
Recordings taken at exact time intervals [1]/data is logged onto the computer [1]/data can be processed immediately by the computer [1]/he does not have to be present to take the readings [1]/reference to direct data capture [1] [1]

(c) TWO from:
Import data collected into a spreadsheet for analysis [1]
Use the data collected to create graphs/charts in a spreadsheet software [1]
Powerpoint/Use multimedia presentation (or word processing) software to create a presentation (or report) [1]
Use word processing/DTP software to create a report [1] [2]

4 (a) TWO from:
Pictures can be edited/stored/deleted on camera/on computer [1]
Film is not required [1]/no need for developing [1]
Time/date can be added to picture [1]
Pictures can be previewed before printing [1]
View on TV [1]
Can take a video [1] [2]

(b)

Statement	Tick (✓)
Most touch screens show blurry images.	
A touch screen can be used as an input device.	✓
A touch screen requires a high level of ICT knowledge to use.	
A touch screen can be used as an output device.	✓

[2]

More than 2 ticks = 0 marks

(c) TWO from:
Access the Internet (including examples e.g. e-mail) [1]
Buy services/films/products (including examples of buying using remote control/keyboard) [1]
Vote [1]/Interact directly with TV programmes [1] e.g. pausing live TV/changing viewing angle/entering competitions
Play games [1] NOT press red button [2]

AVAILABLE MARKS

7

(d) ONE from:
Better picture/sound quality [1]
On screen TV guide [1]
Less interference [1]
Program planner/favourites [1]
More TV channels [1]   [1]   7

5 (a) Use a scanner/scan/scanning/using a digital camera to take photo   [1]

(b) Copyright [1], Designs and Patents (Act) [1]   [2]

(c) (i) A program/file/software [1] which is designed to (deliberately)
damage a computer (system) [1] corrupt files [1] attack the system
[1] damage files/data [1]
e.g. of damage [1]   [2]

(ii) TWO from:
Buy/install antivirus software (accept also names of products
known to be antivirus software e.g. Norton) [1] virus scanner [1]
Scan e-mails/attachments/do not download from potentially harmful
sites/unknown source [1] not open [1]
Use a firewall [1]
Update virus software regularly [1] run virus checks/scans [1] run
computer checks [1] virus detection/protection [1] only download
from safe and trusted sites [1]   [2]

(iii) Computer Misuse Act   [1]   8

Question 5 – Quality of Written Communication
[3] Highly accurate spelling and punctuation. A good range of technical terms.   3
[2] Accurate spelling and punctuation. Some technical terms used.
[1] Reasonably accurate spelling and punctuation. Limited range of specialist
    terms used.
[0] Question not attempted.

6 (a) ONE from:
Look for https [1]
Look for padlock symbol [1] NOT lock
Look for verisign symbol [1]   [1]

(b) ONE from:
No shop visit required/can be done anywhere/anytime [1]
He can read it immediately [1]/available immediately [1]
Not affected by postal strike/speed of post/cannot get lost in post [1]
No postal charges [1]
Repeatedly download [1]
Read it on an electronic device [1]
Environmental advantage [1]
It won't run out of stock [1]   [1]

(c) (i) ONE from:
(Unique) name given to authorised users [1]/account holder/allow you to login [1]
A code given to authorised users/registered members [1]   [1]

(ii) TWO from:
Ensures only authorised users can access the account [1]
Prevents hacking fraud [1]
Provides security for user account details [1]
(Passwords) prevent unauthorised login [1]   [2]

(d)

Statement	Tick (✓)
Hacking involves placing data on the Internet	
Hacking can be prevented by a firewall	✓
Hacking involves unauthorised users using the system	✓
Hacking breaks the Data Protection Act	

[2]   7

Question 6 – Quality of Written Communication
[2] Accurate spelling and punctuation. Some specialist terms used.   2
[1] Reasonably accurate spelling and punctuation. Limited range of specialist terms used.
[0] Question not attempted.

7 (a)

Filename	Statement				
Assignment 1	has been created by a word processor	has been created by a graphics package	(has been created by presentation software)	has been created by a spreadsheet package	is a folder
Blue hills	has been created by a word processor	(has been created by a graphics package)	has been created by presentation software	has been created by a spreadsheet package	is a folder
Assignment 2	(has been created by a word processor)	has been created by a graphics package	has been created by presentation software	has been created by a spreadsheet package	is a folder
Assignment 3	has been created by a word processor	has been created by a graphics package	has been created by presentation software	(has been created by a spreadsheet package)	is a folder
database	has been created by a word processor	has been created by a graphics package	has been created by presentation software	has been created by a spreadsheet package	(is a folder)

[4]

(b) 0.92 Megabytes   9.2 Megabytes   (92 Megabytes)

    920 Megabytes   [1]

(c) (i) Backup is a copy of existing (original) files/data/work/document/ folder [1]
The original data/file is lost/deleted/corrupted/damaged the copy can be used/make reference to a virus accepted [1]   [2]

(ii) **ONE** from:
Large/high storage capacity/space [1]
Portable [1]
Physically robust/not easily damaged [1]
WORM feature of CD-R [1]   [1]

(d) (i) 4.7 (5GB) Gb/16GB [1] 4–7GB/16–17GB [1]   [1]

(ii) Both optical storage devices [1]
Can only be written to once [1]   [1]

AVAILABLE MARKS

10

8 (a) TWO from:
Data on the chip can be changed/updated [1]
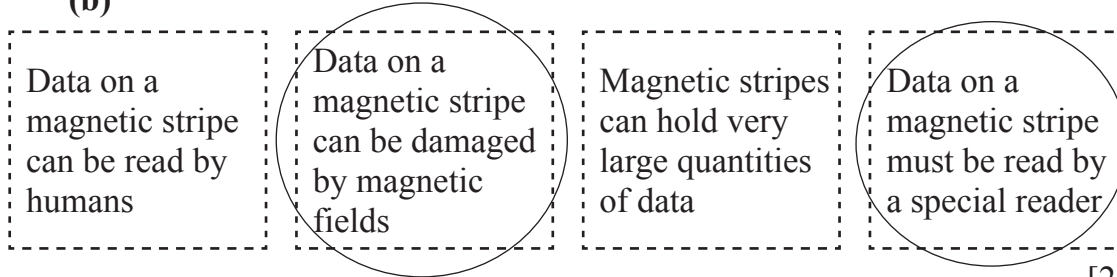Smart chip holds more data [1]
Smart chip technology is more secure [1]
Small sized chip can fit easily on the card [1]
PIN protection [1] NOT Chip n' Pin   [2]

(b)

Data on a magnetic stripe can be read by humans	Data on a magnetic stripe can be damaged by magnetic fields	Magnetic stripes can hold very large quantities of data	Data on a magnetic stripe must be read by a special reader

(circled: "Data on a magnetic stripe can be damaged by magnetic fields" and "Data on a magnetic stripe must be read by a special reader")

[2]

(c) (i) Automated/Automatic teller/telling machine   [1]

(ii) TWO from:
Shorter queues in bank [1]
Less staff required in bank [1]
Less money required on overheads [1]
Staff can be allocated other tasks [1]
May result in less branches [1]   [2]

(d) TWO from:
She can transfer money from/to her account/cards [1]
Manage finance/money [1]
She can pay bills [1]
Block cards [1]
E-mail bank [1]
Check/get statements [1]/view account details [1]
Set up direct debits [1]
Check balance/track money in account [1]   [2]   9

9 (a) Wide Area Network [1]

(b)

Item	Statement
Search Engine	☐ To upload and download files ☐ To display webpages ✓ To find webpages ☐ To get connected to the Internet ☐ To allow data transfer from his PC to the Internet
Web Browser	☐ To upload and download files ✓ To display webpages ☐ To find webpages ☐ To get connected to the Internet ☐ To allow data transfer from his PC to the Internet
Telecommunications link	☐ To upload and download files ☐ To display webpages ☐ To find webpages ☐ To get connected to the Internet ✓ To allow data transfer from his PC to the Internet

[3]

(c) (i) Internet Service Provider [1]

(ii)

An ISP would	Tick (✓)
Install software for the user	
Provide an e-mail service	✓
Provide different bandwidth options	✓
Maintain the user's PC	
Provide security protection	✓
Regularly check the performance of the user's PC	

[3]

More than 3 ticks = 0 marks

8

10 (a) (i) http: Hypertext transfer protocol [1]/protocol used for the webpage [1] Internet protocol [1] [1]

(ii) www: pcglobe.com server on the web [1]/website address [1] domain name [1] website name [1] [1]

(iii) index.htm: file on the server [1] page on the website [1] [1]

(b) (i) ONE from:
Link/text/picture/icon which when clicked takes you to a different (web)site/(web)page/file **or** a different part of the Internet [1] [1]

(ii) ONE from:
Any of the buttons e.g. "Calendar" [1]
Any of the e-mail links [1] [1]

(iii) Advantage: Good user interface/pleasing for users [1]
Disadvantage: Slower loading of webpages [1]/more webspace required [1] [2]

(iv) TWO from:
Tables/Frames [1]
Font size and type/style [1] for reference to text features
Template [1]/theme/cascading style sheets [1]
Borders [1]
Graphics [1]/pictures/images/clipart [1]
Navigation bar/buttons/Interactive (Flash) buttons [1]/menu [1]
mailto link [1]/e-mail link [1]
Banner [1]
Marquee [1] [2]

9

11 (a) Any row/record correctly highlighted – no marks for multiple rows highlighted [1]

(b) 11 [1]

(c) (i) OrderID – Alphanumeric/Character/Text [1]

(ii) Collected – Boolean/Yes/No/Text [1]

(d) (i) query [1]

(ii) – greater than 80 or > 80 [1]

(e) (i) Fieldnames/Headings are not the same in both tables/some headings are missing in the second table/data types may not be the same [1]

(ii) Form [1]

(f) Filter/Query/Select/Search customers [1] where **Collected = No** [1] Import/Merge onto report/letter [1] [2] 10

12 (a) Merged/Bold [1]

(b) Currency [1]

(c)

Formula	Tick (✓) one only
=E15*F15	✓
=E15+F15	
=C15*D15	

[1]

(d) E17 [1] [1]

(e) AVERAGE function   SUM function   MAX function [1]

(f)

Formula	Tick (✓) one only
=IF(D7 > = 150, "Yes", "No")	
=IF(D7 < 150, "Yes", "No")	
=IF(D7 > 150, "Yes", "No")	✓

[1]

(g) (i) Use the SORT facility [1] accept graphic of sort icon [1] [1]

(ii) Alphabetical Order A-Z/Ascending [1] NOT filter [1]

(h) (i) B5:B16/B6:B16 [1]; D5:D16/D6:D16 [1]; G5:G16/G6:G16 [1] [3]

(ii) Blonde Shampoo [1]   [1]

13

Definition	Term
Software which includes windows, icons, menus and pointers	**Graphical User Interface**
A device which allows the electronic transmission of paper documents	**Facsimile**
Communicating across a network using sound and image	**Video conferencing**
A method of making a file smaller in size	**Compression**
A method used to prevent websites and webpages from being accessed	**Web Filtering**
Sending an e-mail to recipients when they can only see their own details and not those of other recipients	**Blind Carbon Copy**
An output device which uses toner to place images on paper	**Laser Printer**
A storage medium which can only be read from	**CD-ROM**
A picture file which has not been optimised for use on the Internet	**Bitmap**
A method of placing files on the Internet	**Uploading**

[10]   10

14 (a)

Image	Effect
Header Electronic Supermarket · 21 Long Road · · Bangor · Co Down www.electronicsupermarket.com email: office@electronicsupermarket.com	**Rotate**
Header Electronic Supermarket 21 Long Road Bangor Co Down www.electronicsupermarket.com email: office@electronicsupermarket.com	**Crop**
Header Electronic Supermarket 21 Long Road Bangor Co Down www.electronicsupermarket.com email: office@electronicsupermarket.com	**Flip**

[3]

(b) (i) **TWO** from:
Italic [1]
Bold [1]
Right/Left/Centre justify [1] Align [1]   [2]

(ii) **ONE** from:
Faster than typing contact information [1]
More professional finish will be achieved [1]
Contains standard information [1]
Gives clients contact details for company [1]   [1]   6

15 (a) The part of the computer where all data is processed [1] and tasks/ system tasks are carried out [1]
Processes instructions/commands/data/information [1]
Manipulates data/performs arithmetic or logic operations/calculations [1]
Performs operations on data [1]
Loads/runs programs/applications/software [1]
Brain of the computer/controls or runs the computer [1]
Has a control unit, ACU and main memory [1]   [2]

(b) The faster the processor speed the more instructions can be carried out [1] (comparative statement needed)
The faster the processor speed the better the performance [1]   [1]

(c) **TWO** from:
Input devices [1]
Output devices [1]
Memory stick/storage devices for transferral of data [1]
Communication devices e.g. router [1]
Charging portable devices [1]
Transferring data [1]   [2]

(d) (i) **ONE** from:
No need to "plug in" [1]
Long battery life means they can use it all day [1]
Can work anywhere in the school [1]
Know in advance they have 8 hours [1]
Reference to time it can be used without charging [1]   [1]

(ii) **ONE** from:
Light weight therefore easy to carry around [1]
Portable [1]   [1]

(e)

Task	TV-Out	Hard Disk	Optical Drive	Wireless Enabled
Connecting to the network				✓
Installing new software			✓	
Connecting to a TV	✓			
Storing coursework files		✓		

More than one tick in each row = 0 marks   [4]

11

Question 15 – Quality of Written Communication

[2] Accurate spelling and punctuation. Some specialist terms used.

[1] Reasonably accurate spelling and punctuation. Limited range of specialist terms used.

[0] Question not attempted.

2

Total   **140**

Rewarding Learning

**General Certificate of Secondary Education
2010**

Information and Communication Technology

Full Course

Paper 2

Higher Tier

[G5804]

THURSDAY 24 JUNE, MORNING

MARK
SCHEME

1 (a) (Measures) the quality of image/graphic (on screen)/(measures) number of pixels making up the image (on the screen) [1]
Higher resolution/more pixels better quality of image represented [1][2]

(b) Drawing must correctly represent both portrait and landscape format   [1]

(c)

Storage Device	Volatile/Non-volatile?
ROM Chip	Non-volatile
SD Memory Card	Volatile/non-volatile

[2]

(d) ROM cannot be altered/images cannot be stored on ROM [1]
to store pictures [1] to transfer pictures [1] portability of pictures [1] [1]

(e) TWO from:
Pictures can be transferred to the picture frame easily/pictures can be transferred wirelessly. [1] No need for cables. [1] NOT Internet connection. To connect to another wireless device/computer [1]   [2]

2 (a)

Definition	Validation/Verification?
Helps guarantee the accuracy of data being entered into a computer system	Verification
Helps ensure that data being entered into the system is correct	Validation

[2]

(b)

Data Item	Error Message	Validation check
2001	Membership number must be between 1 and 2000	Range check
@lexander	Member name must contain text only	Type check
18/05/2000	Date of birth must be entered dd/mm/yy	Format check
PT	Membership type must be 3 characters long	Length check
Field is left blank	Membership number cannot be left blank	Presence check

[4]

8

(c) Any **TWO** from:
Data entered into system twice [1]
Comparison takes place [1]
Discrepancies reported [1]
Double entry [1] [2]

8

3 **(a)** Integrated Services Digital Network [1]

(b) Any **ONE** from:
Larger, higher bandwidth/faster downloads [1] No dial up required [1]
NOT faster connection
Can use phone and be on internet at same time
Many computers can be connected [1] [1]

(c) Any **ONE** from:
Expensive NOT easily damaged [1]

(d) Standard for data communication [1] data can be understood by all
computers on the network [1]
(Set of) rules [1]
Used to govern communication on a network [1] [2]

(e) Any **TWO** from:
Allows data to be transmitted securely [1] encoding data/scrambling
data [1]
Use of key [1]/lock or unlock data [1]/encryption programme
Can only be decoded if recipient has key [1]
Makes data unreadable [1] used to prevent hackers from stealing data
[1] cannot be understood if intercepted [1] [2]

(f) Any **TWO** from:
Connects two networks together/works out optimum route [1]/connects
to Internet/WAN/network [1]/finds the best route for data [1] [2]

(g) **Advantage** (Any **ONE** from)
No need for expensive cabling/additional devices can easily be added/
network easily expanded/can be used anywhere [1]
Disadvantage (Any **ONE** from)
Slower communication speeds/interference from other wireless
networks/security considerations
Internet/network is slow/intermittent performance [1]
Poor signal/coverage [1] Lose connection [1] reference to distance
away [1] [1]

11

Question 3 – Quality of Written Communication
[2] Accurate spelling and punctuation. Some technical terms used.
[1] Reasonably accurate spelling and punctuation. Limited range of technical
terms used.
[0] Not attempted.

2

4 **(a)** Repetition of 201 as a Booking ID [1]

(b) Each driver will have more than one booking/Driver ID appears more
than once in this table/Driver ID is repeated [1]

(c) Is no Driver ID 105 (in tblDriver) [1]

(d) (i) 2 [1]

(ii) 0 [1]

(iii) 2 [1]

(e) Report [1]

(f) Any **TWO** from:
Add logo to form
Add control buttons/macro buttons to form
Background graphics
Amend font/text colour/text size
Colour
Add a heading/title
Instructions
Space information out well [2]

(g) (i)

Definition	Tick (✓)
Data integrity refers to how correct and relevant the data is	
Data integrity refers to how correct and reliable the data is	✓
Data integrity refers to how accurate and normal the data is	
Data integrity refers to how accurate and irrelevant the data is	

More than 1 tick = 0 marks [1]

(ii) Unnecessary repetition of data/unnecessary duplication of data [1]

(iii) Takes up extra storage space
Searches can take longer
More memory required for processing
Larger file size [1]

12

5 (a) Any **TWO** from:
Peripherals can be shared [1]
Software can be shared [1]
Data can be accessed from any station [1]
Increased security [1]
Monitor users [1]
Sharing data/files [1] [2]

(b)

Storage media	Tick (✓)
Memory Stick	
DVD ROM	
Magnetic Tape	✓
External Hard Drive	✓
CD ROM	

[2]

(c) ONE from:
Levels of access/Firewall/Encryption/Virus protection [1]

(d) Any **TWO** from:
LAN small geographic area LAN one site but WAN greater geographic area [1]
Type of link e.g. LAN – e.g. wifi/copper cable WAN – satellite/Fibre optic/copper cabling [1]
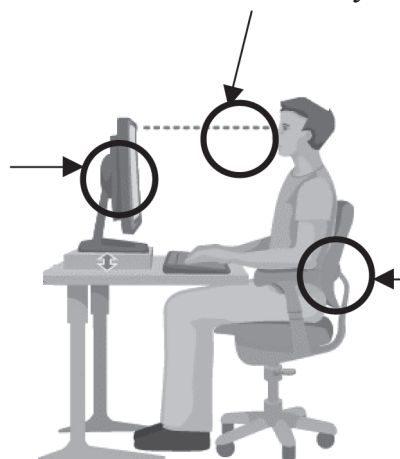Easier to apply security on a LAN [1] [2]

7

6 (a) **(i) Advice:** ref to appropriate eye level/level with top of screen [1]
Lower the chair [1]
Move relative to screen [1]

Reason: reduce eye strain [1]

(ii) Advice: adjustable screen [1]
e.g.s of being able to adjust screen [1]

Reason: minimise neck strain [1]

Advice: Chairs should have lower back support

Reason: Helps to reduce back strain

(http://www.codinghorror.com/blog/images/computing-ergonomics-monitor-position.png)
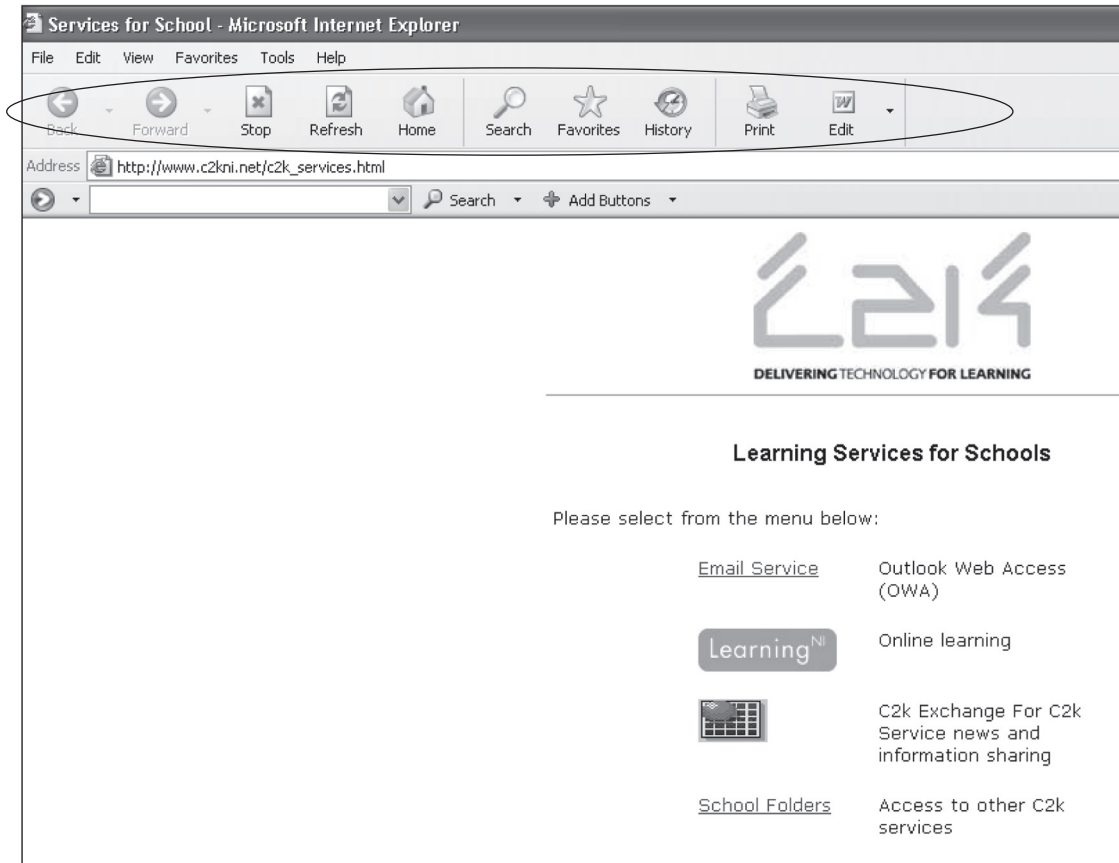
[4]

(b) Any **TWO** from:
No trailing cables [1]/extension leads [1]
Suitable temperature [1]
Fire extinguishers [1]/sprinklers [1]
No food or drink [1]
Switch off computers/log off correctly [1]   [2]   6

7 (a) Hypertext Markup Language   [1]

(b) Circle more than one area = 0 marks

© *c2kni*   [1]

(c) Can easily access page at later stage/previously visited pages/can work
back through steps if you get lost surfing/review pages visited   [1]
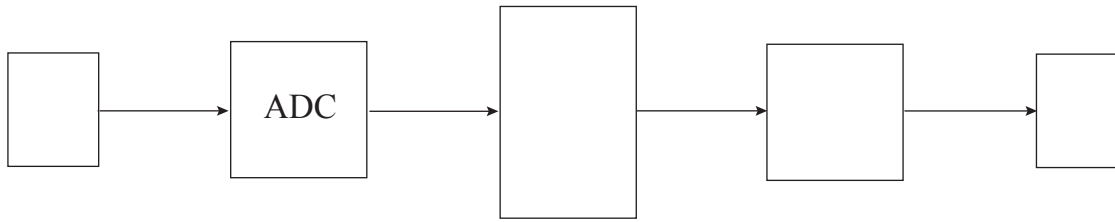
(d) allows you to access your home page   [1]

(e) Uniform Resource Locator   [1]   5

8 (a) Payroll/sorting mail/bank statements/cheque processing/OMR exam
marking/OMR attendance   [1]

(b) Details of current meter readings are entered onto the system in one **batch** [1]
Problem data results in an **Error Report** [1]
Current meter readings are then stored on a **Transaction File** [1] which is then merged with the old **Master File** [1] so the customer's **Bill** [1] can be calculated [5]

(c) Computers can be used for other tasks during day/processing can be carried out unsupervised/frees up processor time/computer not slowed down by processing [1]

(d) No double booking [1]

8

9 **(a)** **(i)** Example 1: traffic lights/description of a process e.g. lights changing
Sensor 1: pressure sensor/motion sensor
Example 2: speed camera
Sensor 2: motion sensor
1 for each correct example [max 2]
1 for each correct sensor in the context given
Example 3: volume of traffic
Sensor 3: pressure sensor/motion sensor [4]

(ii) **Advantage:** (any **ONE** from)
Better control of traffic on busy roads/traffic is monitored – data fed to navigation systems/monitoring speed – safer roads/traffic signs can be updated as needed/lights etc. can be altered according to traffic flow/lights can be changed to help emergency services move more easily through traffic/24-7 monitoring
NOT no human intervention [1]

Disadvantage: (any **ONE** from)
Problems if system breaks down/cost of installation and maintenance/can be hacked into and amended/leads to higher road tax NOT less jobs [1]

(b) **Step 5:** Input into the system (again)/temperature is recorded/checked (again)/temperature is Repeat Step 1 [1]

(c) 1 mark for any suitable example e.g. washing machine/microwave/digital box/burglar alarm/central heating/fire alarm etc. [1]

8

10 **(a)** **ONE** from:
Analogue cannot be understood by the computer [1]/cannot be stored on digital devices [1]
Only digital format can be stored on the computer [1] [1]

(b) Label the diagram below using the following terms [1]

```
┌──────┐      ┌──────┐      ┌──────┐      ┌──────┐      ┌──────┐
│      │ ───> │ ADC  │ ───> │      │ ───> │      │ ───> │      │
└──────┘      └──────┘      └──────┘      └──────┘      └──────┘
```

(i) Microphone   **(ii)** Computer   **(iii)** DAC   **(iv)** Speaker
[4]

(c) Tick (✓) **TWO** advantages of digital music recordings **for the listener**.

Advantage	Tick (✓)
The file quality will remain the same at all times	✓
The file can be played on any audio device	
The file can be stored on a computer and played back	✓
The file quality deteriorates over time	

More than 2 ticks = 0 marks [2]

(d) Any **TWO** from:
Sheet music can be generated automatically [1]
Music can easily be edited and experimented with [1]
Can easily add effects [1]
Can easily add voice [1]
Non-experts can use it to create music [1]
Files can be shared digitally [1]
Files can be added to digital device [1]   [2]   9

11 (a)

Statement	Tick (✓)
Some games consoles can be connected to the Internet for interactive gaming	✓
Virtual reality games are available for play via mobile phone technology	
All computer games are available for purchase in CD format	
Virtual reality games can now be found in some gaming arcades	✓
Games consoles now come with a variety of peripherals to allow interaction with the game	✓

More than 3 ticks = 0 marks   [3]

   (b) Any **TWO** from:
      Improvements in processing power
      Faster startup/loading
      Improvement in programming capabilities
      Internet/on-line gaming
      Improved graphics/better screen/better resolution
      Improvements in peripherals for interaction with game/wireless
      peripherals
      Improved sound
      Greater control
      More realistic (NOT virtual reality)   [2]

   (c) Health – Any **TWO** from:
      Obesity [1] general lack of exercise [1] lack of fitness [1] RSI [1]
      Back Strain [1] Eye Strain [1]   [2]

7

12 (a) Entertainment device – any **TWO** from:
Has radio [1] mp4 [1]
able to play/secure/record video [1] able to play/store/record music [1]
mp3 players [1] games [1] internet [1] able to take photos [1]   [2]
Advice – any **TWO** from:
Large screen size
Bluetooth [1] wifi [1] WAP [1] 3G [1] Lots of memory/capacity [1]
high processor speed [1] screen resolution/quality [1] good quality
camera [1] good quality speakers/sound [1] touch screen [1] good
battery life   [2]

(b) Social – any **TWO** from:
poor written communication skills/poor verbal communication skills
(listen to music instead of interacting with others)
Less face-to-face interaction/less socialising [1] communicate at any
time [1] anti-social behaviour [1] intrusive [1] cyberbullying/bullying
[1] e.g. of cyberbullying accepted/anonymous texting/prank calls
Worldwide communication readily available [1]
NOT accepting health issues   [2]   6

Question 12 – Quality of Written Communication
[3] Highly accurate spelling and punctuation. A good range of technical terms   3
used.
[2] Accurate spelling and punctuation. Some technical terms used.
[1] Reasonably accurate spelling and punctuation. Limited range of technical
terms used.
[0] Not attempted.

                                                        Total   **100**