



Rewarding Learning

General Certificate of Secondary Education

2015

**Information and Communication Technology
(Full Course)**

Unit 3: Understanding ICT Systems in Everyday Use
and its Implications for Individuals, Organisations, Society
and the Wider World

[GIT31]

WEDNESDAY 13 MAY, MORNING

**MARK
SCHEME**

General Marking Instructions

Introduction

Mark schemes are intended to ensure that the GCSE examinations are marked consistently and fairly. The mark schemes provide markers with an indication of the nature and range of candidates' responses likely to be worthy of credit. They also set out the criteria which they should apply in allocating marks to candidates' responses. The mark schemes should be read in conjunction with these general marking instructions.

Assessment Objectives

Below are the assessment objectives for GCSE ICT.

Candidates must:

- recall, select and communicate their knowledge and understanding of ICT;
- apply knowledge, understanding and skills to produce ICT-based solutions; and
- analyse, evaluate, make reasoned judgements and present conclusions.

Quality of candidates' responses

In marking the examination papers, examiners should be looking for a quality of response reflecting the level of maturity which may reasonably be expected of a 16-year-old which is the age at which the majority of candidates sit their GCSE examinations.

Flexibility in marking

Mark schemes are not intended to be totally prescriptive. No mark scheme can cover all the responses which candidates may produce. In the event of unanticipated answers, examiners are expected to use their professional judgement to assess the validity of answers. If an answer is particularly problematic, then examiners should seek the guidance of the Supervising Examiner.

Positive marking

Examiners are encouraged to be positive in their marking, giving appropriate credit for what candidates know, understand and can do rather than penalising candidates for errors or omissions. Examiners should make use of the whole of the available mark range for any particular question and be prepared to award full marks for a response which is as good as might reasonably be expected of a 16-year-old GCSE candidate.

Awarding zero marks

Marks should only be awarded for valid responses and no marks should be awarded for an answer which is completely incorrect or inappropriate.

Types of mark schemes

Mark schemes for tasks or questions which require candidates to respond in extended written form are marked on the basis of levels of response which take account of the quality of written communication.

Other questions which require only short answers are marked on a point for point basis with marks awarded for each valid piece of information provided.

Levels of response

Tasks and questions requiring candidates to respond in extended writing are marked in terms of levels of response. In deciding which level of response to award, examiners should look for the 'best fit' bearing in mind that weakness in one area may be compensated for by strength in another.

In deciding which mark within a particular level to award to any response, examiners are expected to use their professional judgement. The following guidance is provided to assist examiners.

- **Threshold performance:** Response which just merits inclusion in the level and should be awarded a mark at or near the bottom of the range.
- **Intermediate performance:** Response which clearly merits inclusion in the level and should be awarded a mark at or near the middle of the range.
- **High performance:** Response which fully satisfies the level description and should be awarded a mark at or near the top of the range.

Marking calculations

In marking answers involving calculations, examiners should apply the 'own figure rule' so that candidates are not penalised more than once for a computational error.

Quality of written communication

Quality of written communication is taken into account in assessing candidates' responses to all tasks and questions that require them to respond in extended written form. These tasks and questions are marked on the basis of levels of response. The description for each level of response includes reference to the quality of written communication.

For conciseness, quality of written communication is distinguished within levels of response as follows:

Level 1: Quality of written communication is limited.

Level 2: Quality of written communication is satisfactory.

Level 3: Quality of written communication is of a good standard.

In interpreting these level descriptions, examiners should refer to the more detailed guidance provided below:

Level 1 (Limited): The candidate makes only a limited attempt and use of an appropriate form and style of writing. The organisation of material may lack clarity and coherence. There is little use of specialist vocabulary. Presentation, spelling, punctuation and grammar may be such that intended meaning is not clear.

Level 2 (Satisfactory): The candidate makes a reasonable attempt and use of an appropriate form and style of writing, supported with appropriate use of diagrams as required. Relevant material is organised with some clarity and coherence. There is some use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are sufficiently competent to make meaning evident.

Level 3 (Good): The candidate successfully selects and uses an appropriate form and style of writing, supported with effective use of diagrams where appropriate. Relevant material is organised with a good degree of clarity and coherence. There is good use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are of a sufficiently high standard to make meaning clear.

- 1 (a) **B** Random Access Memory is volatile [1]
- (b) **D** Comma Separated Value [1]
- (c) **D** Information is data that has been processed and presented in a meaningful form [1]
- (d) **A** Internet Service Provider [1]
- (e) **C** Has a different value for each record [1]
- (f) **A** Write Once Read Many [1]
- (g) **C** Vector-based graphics store details about individual components that make up the image [1]
- (h) **D** midi, wav, wma, mp3 [1]
- (i) **A** Optimisation reduces file size for faster upload and download across the Internet [1]
- (j) **B** An area on an image you can click on to access a hyperlink to another web page or website [1]
- (k) **B** Games consoles are becoming smaller in size, they have increased processing in power and they allow users to access a wide range of functions [1]

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- 2 (a) Optical Character Recognition/Reader [1]

(b)

Process	Tick (✓)
Scanning a document so that the data can be edited	✓
Entering data directly onto a spreadsheet	
Using a GUI	
Converting handwritten postcodes on envelopes into electronic data	✓
Typing a document in a word processor	

[2]

3

3 (a)

Statement	Tick (✓)
Tablet 1 will have Internet access without the need to log onto the wireless network	
Tablet 2 will have Internet access without the need to log onto the wireless network	✓
Tablet 1 will take better quality photographs than tablet 2	✓
Tablet 2 will take better quality photographs then tablet 1	

[2]

(b)

Purpose	Which Tablet?	Explain your choice of tablet below.
Playing online games	Tablet 1	Greater amount of RAM[1]/Faster processor [1] Has 3G [1] Therefore better performance [1]
	Tablet 2 [1]	Higher resolution screen, better quality graphics [1] [2]
Storing HD movies.	Tablet 1	Greater capacity/storage [1] More movies can be stored/ HD movies are large in size [1]
	Tablet 2 [1]	[2]

[6]

(c) (i) Wi-Fi is short for Wireless Fidelity. It is a set of **standards** for using short range radio **waves** to allow computing **devices** to connect to a LAN or to the Internet. [3]

(ii) **Two** from:
 Bluetooth has a short range [1]
 Easily connected to other Bluetooth-enabled devices [1]/mobiles [1]
 Bluetooth uses less power used in connection than Wi-Fi [1]
 Bluetooth uses lower-level security than Wi-Fi [1]
 Bluetooth data transmission rate is lower than other wireless technologies [1]
 Bluetooth can penetrate solid objects [1] [2]

(d) (i) **Two** from:
 Stores data currently in use [1]
 Stores data not yet saved [1]
 Temporary/volatile storage [1]
 Stores programs currently in use [1] [2]

(ii) **Two** from:
 Less/more RAM gives faster/slower processing of data/better performance [1]
 More RAM allows for more multitasking[1]/more programs can be opened at once [1] [2]

(e) **Two** from:
 Can log on using any device within range [1]
 Can log on to the network from any location with Wi-Fi available [1]
 Can use Internet from any location [1]
 Can access files from any location [1] [2]

AVAILABLE MARKS

- (f) **Two** from:
Usernames/Accounts [1]
Passwords/Pass code [1]
Levels of access [1]
Change passwords regularly [1]
Password on WiFi [1]

[2]

AVAILABLE
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- 4 (a) Two** from:
 Hardware/software [1] which will prevent unauthorised access [1]
 from across the Internet/filters data [1]
 prevents hacking/viruses [1] [2]
- (b) Three** from:
 Data is scrambled/encoded at source [1]
 Data is unscrambled/decoded at destination [1]
 Data is meaningless in transition [1]/prevents hackers from intercepting
 data [1]
 A key/encryption key is required to encode the data [1]
 A key/decryption key is required to decode the data [1] [3]
- (c) Two** from:
 Passwords should:
 Be a combination of letters, numbers and other characters [1]
 Have a minimum number of characters [1]
 Be changed regularly [1]
 Be kept confidential [1]
 Passwords should not:
 Be obvious, an example is abcd [1]
 Be written down anywhere [1] [2]
- (d) Two** from:
 Stores data/files[1]
 Stores all software/system software/operating system/programs [1]
 Manages security on the network [1]
 Communicates with all devices on the network [1]
 managers users' access to the network [1] [2]
- (e) Two** from:
 All files from the file server are copied [1]
 Magnetic tape method/cloud storage/external disk, etc. [1] [2]
- (f) One** from:
 Can be accessed from anywhere/
 Updates to the application can be carried out wirelessly/immediately [1] [1]

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5 Level 0 [0]

Answer is not worthy of credit.

Level 1 ([1]–[2])

The candidate refers to one or two headings in context. The candidate makes limited use of spelling, punctuation and grammar. The meaning of the text is not always clear. The candidate displays a limited form and style appropriate to the question. The organisation of the answer is limited.

Level 2 ([3]–[4])

The candidate describes the two headings in context. The candidate makes satisfactory use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a satisfactory form and style appropriate to the question. The organisation of the answer is satisfactory.

Level 3 ([5]–[6])

The candidate describes fully the two headings in context. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is always clear. The candidate demonstrates a good form and style appropriate to the question. The organisation of the answer is satisfactory.

Answers may include:

Services

Itemised receipt produced

Customers do not have to carry cash

Customers can use self service tills easily

Less queues at tills as customers are processed quickly

The company is less likely to run out of stock as EFTPOS informs stock control

Accuracy

Stock records are updated immediately therefore information will be up to date

Items are scanned using till therefore less human error

Check digit ensures data is entered correctly

Analysis of customer spending habits

Exact amount of money is transferred/no change errors/financial accuracy

Financial analysis

Stock ordering is accurate

[6]

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MARKS

6 (a)

Formula	Tick (✓)
=SUM(J3:J10)	✓
=SUM(G11:H11)	
=SUM(D3:D11)	

[1]

(b) F3+D3/ SUM(F3,D3)

[1]

(c) (i)

IF Statement	Tick (✓)
=IF(E3<=15,500,E3*50)	
=IF(E3<=15, 5,E3*0.50)	✓
=IF(E3<=15,5,E3*50)	

[1]

(ii) =IF(E3<=15, \$D\$14 [1], E3*\$D\$15 [1])

[2]

(iii) The charges for delivery can be changed [1] without impacting on the formula [1] (within the IF statement).

When replicated/copied values/cell reference remain same [1]

[2]

(d)

IF statement showing FALSE in cell I5	IF statement showing 0 in cell I5
=IF(H5="Y",G5*0.05)	IF(H5="Y",G5*0.05, G5*0) [1]

[1]

(e) Max/Maximum [1]

[1]

(f) **Two** from:

The effects of changing delivery charges/rates of discount could be examined [1]

What if scenarios/predictions/data modelling [1]

The effect of a value changed [1] plus the impact [1]

[2]

AVAILABLE MARKS

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7 Level 0 [0]

Answer is not worthy of credit.

Level 1 ([1]–[2])

The candidate refers to one or two effects of technology on employment or describes one effect. The candidate makes limited use of spelling, punctuation and grammar. The meaning of the text is not always clear. The candidate displays a limited form and style appropriate to the question. The organisation of the answer is limited.

Level 2 ([3]–[4])

The candidate describes two effects of technology on employment. The candidate makes satisfactory use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a satisfactory form and style appropriate to the question. The organisation of the answer is satisfactory.

Level 3 ([5]–[6])

The candidate describes fully two effects of technology on employment. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is always clear. The candidate demonstrates a good form and style appropriate to the question. The organisation of the answer is good.

Answers may include:

Reference to job displacement

The need for re-skilling/training

The creation of new roles/jobs/job opportunities

Loss of traditional jobs/roles

Teleworking and associated benefits/issues

[6]

6

8 (a)	Statement	Tick (✓)
	Fast reactions are needed in time crucial scenarios	
	The player answers quiz type questions	✓ [1]
	The game is played through the eyes of another character	
	The game gets harder the longer you play	✓ [1]

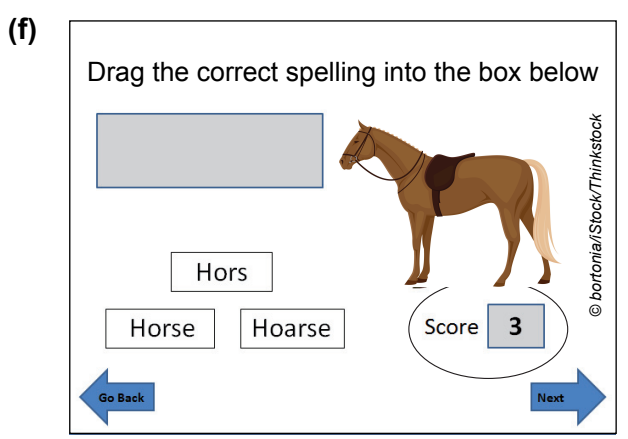
[2]

- (b) Any **two** from:
 Limited/basic instructions [1] not sound as it is in part (e)
 Simple language [1]
 Large writing/readable font [1]
 Use of colour [1] [2]

- (c) Large file size [1] Too long to load/impact on game performance [1] [2]

- (d) Mouse/touch screen/tracker pad [1]

- (e) Any **two** from:
 Sound played in background [1]
 Theme tune at start or end of game/win [1]
 Sound when they get something correct/incorrect [1]
 Say the words/score aloud [1] [2]



[1]

[1]

- (g) Any **three** from:
 How to start/stop/pause the game or play the game [1]
 How to score points [1]
 Rules of the game [1]
 Aim/object of the game [1]
 How to move spellings to correct place in game/interact with the game/game controls [1] [3]

- (h) Score: select a correct spelling for the word/incorrect spelling [1] and see if it increases the score/leaves score unchanged [1]

 Navigation: click on the next/go back button/arrow keys [1] see if it takes you to the correct screen [1] [4]

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9 Level 0 [0]

Answer is not worthy of credit.

Level 1 ([1]–[2])

The candidate refers to one, two, three or describes one of the technologies and provides limited explanation of how that technology has helped support gaming on mobile telephones. The candidate makes limited use of spelling, punctuation and grammar. The meaning of the text is not always clear. The candidate demonstrates a limited form and style appropriate to the question. The organisation of the answer is limited.

Level 2 ([3]–[4])

The candidate describes two or three of the technologies and provides a brief explanation of how those technologies have helped support gaming on mobile telephones. The candidate makes satisfactory use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a satisfactory form and style appropriate to the question. The organisation of the answer is satisfactory.

Level 3 ([5]–[6])

The candidate describes all three of the technologies and fully explains how all three of these technologies have helped to support gaming on mobile telephones. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is always clear. The candidate demonstrates good form and style appropriate to the question. The organisation of the answer is good.

Answers may include:

Processor: increased processing power/smaller processors
multitasking available on mobile phones/can play games and still accept calls/people more likely to play games
increased reaction times to games/interactions
support better graphics

Screens: touch screens available now means users can interact with games without need for any other device touch screens more sensitive so faster reactions processed
Higher resolution/better graphics/larger screens

3G: Internet gaming/online gaming
can play games with friends anywhere provided you have 3G signal
can post scores on social networking sites/encourages competition in gaming
3G can be limiting and associated issues

[6]

AVAILABLE
MARKS

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			AVAILABLE MARKS
10 (a) (i)	Give a more professional appearance/ Saves time when designing and developing/ Details on master slide appear on all slides	[1]	
(ii)	(Text/graphic) click [1] to open page/Internet/file [1]	[2]	
(iii)	Any two from: Gif [1] mpeg [1] mmg [1] wepg [1] Fla [1] flc [1] swi [1] Swf [1] fli [1] png [1] or other acceptable file format	[2]	
(b)	Connect to her computer via a wireless link [1]/insert memory card into computer [1] Copy the image across [1] import/download	[2]	
(c)	Crop/lasso	[1]	
(d)	Flip/mirrored [1] Resize/stretched/enlarged [1]	[2]	
(e) (i)	Joint Photographic Experts Group	[1]	
(ii)	Compressed file format [1] Small file size/less storage space [1]	[2]	
(f)	Her (contract/supplier) (phone) may not have MMS [1] The file size may be too large [1] No signal/no service [1] No credit [1]	[2]	15
11 (a)	Musical Instrument Digital Interface	[1]	
(b)	Any one from; Music already digital format/no need to transfer to computer/no need to convert Can be edited straight away/easier to edit No sound quality lost, e.g. no distortion	[2]	
(c)	Any one from: 50 seconds long – should only be 30 [1] Too long [1]	[1]	
(d)	Microphone	[1]	
(e) (i)	removing data from the file [1] reduces the quality of the file when played back [1]	[2]	
(ii)	reduces the file size/less storage space needed	[1]	8

- 12 (a) for any hyperlink name, e.g.
Home, Welcome, Location, Coaching
Contact us, Send club a message, Recent Posts [1]
- (b) Hypertext Mark-up Language [1]
- (c) (i) smaller version of an image [1] you click on displays larger version [1] [2]
- (ii) Any **two** from:
Cluttered or unprofessional
takes up too much of their web space/memory [1]
slow loading time for website/poor performance [1]
Video log [1] [2]
- (d) Any **two** from:
User needs to be able to easily navigate from one page to another/same layout on each page means they can easily find the button to the home page, etc. [1]
makes the website look more professional/interface quality [1] [2]
- (e) Any **two** from:
website doesn't always look the same [1]
lets him test how it will look in browser [1]
allows him to identify design errors [1] [2]
- (f) Banner image [1] Logo [1]/Belfast fencing club [1]
navigation bar/any of the navigation buttons [1] search feature [1] [2]
- (g) Compressed file format [1] so take up less web space [1]/cannot be easily edited by someone else [1]/can be viewed on a variety of platforms [1] [2]
- (h) **Level 0 ([0])**
Answer is not worthy of credit.

Level 1 ([1]–[2])

The candidate refers to one or two or describes one of the tools and what its function is. They provide limited explanation of how that tool can be used in web design. The candidate makes limited use of spelling, punctuation and grammar. The meaning of the text is not always clear. The candidate demonstrates a limited form and style appropriate to the question and little or no evaluation is present. The organisation of the answer is limited.

Level 2 ([3]–[4])

The candidate describes two of the tools and their functions. They provide a reasonable explanation of how at least one of those tools can be used to aid web design. The candidate makes satisfactory use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a satisfactory form and style appropriate to the question. The organisation of the answer is satisfactory.

Level 3 ([5]–[6])

The candidate describes fully two of the tools and their functions. They explain how the tools can be used to aid web design. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is always clear. The candidate demonstrates good form and style appropriate to the question. The organisation of the answer is good.

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MARKS

Answers may include:

Design View: used to place objects such as layers, tables and other multimedia content on a website

allows you to design a website in an environment where the site cannot be viewed online

can easily (change) (edit) the layout of the website in design view before the site is published

Forms: used to collect data from users of the website. Can include textboxes, tick boxes, option buttons and must be submitted by clicking a button.

Used to collect data and a suitable example [6]

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13 (a) (i) 7 [1]

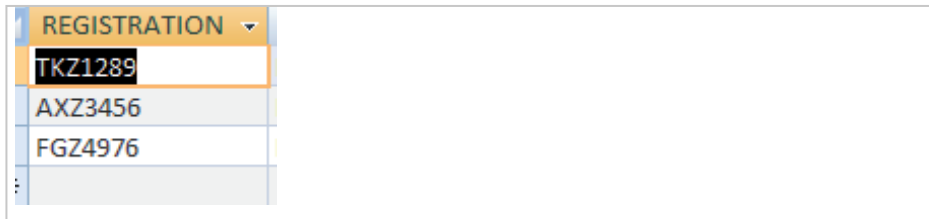
(ii) 6 [1]

(iii)

Fieldname	Data Type
REGISTRATION	Text/Alphanumeric/string
PRICE	Currency
MILEAGE	Integer/number/numeric

[3]

(b)



[3]

(c) Sort/a description of the sort [1]

Group [1]

[2]

(d) Redundancy [1] data is repeated unnecessarily [1]

Integrity [1] data is less likely to be correct or is unreliable [1]/as the same data is stored/entered several times increasing the likelihood of errors [1]. [4]

14

14 Level 0 [0]

Answer is not worthy of credit.

Level 1 ([1]–[2])

The candidate refers to one or two or describes one of the health and safety risks. The candidate makes limited use of spelling, punctuation and grammar. The meaning of the text is not always clear. The candidate displays a limited form and style appropriate to the question. The organisation of the answer is limited.

Level 2 ([3]–[4])

The candidate describes the two health and safety risks in context. The candidate makes satisfactory use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a satisfactory form and style appropriate to the question. The organisation of the answer is satisfactory.

Level 3 ([5]–[6])

The candidate describes fully the two health and safety risks in context. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is always clear. The candidate demonstrates a good form and style appropriate to the question. The organisation of the answer is good.

Answers may include:

RSI

Take regular breaks

Use ergonomically designed keyboard and mouse

Use appropriate furniture such as adjustable chairs

Use wrist rest/foot rest/change sitting position from time to time

Eyestrain

Use anti-glare screens

Use adjustable screen/uses screen with adjustable brightness

Have well lit environment

Use blinds to control sunlight

Employer provide free eyesight test

Don't sit too close to the screen

[6]

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AVAILABLE
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15 (a)

Statement	Tick (✓)
Photocopying all the pages from a text book	✓
Modification of your own work on the school network	
Uploading his own photographs to social networking sites	
Making copies of films on DVD	✓

[2]

(b) **Level 0 [0]**

Answer is not worthy of credit.

Level 1 ([1]–[2])

The candidate correctly describes the role of one of the people involved in the Data Protection Act. The candidate makes limited use of spelling, punctuation and grammar. The meaning of the text is not always clear. The candidate displays a limited form and style appropriate to the question. The organisation of the answer is limited.

Level 2 ([3]–[4])

The candidate correctly describes the role of two of the people involved in the Data Protection Act. The candidate makes satisfactory use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a satisfactory form and style appropriate to the question. The organisation of the answer is satisfactory.

Level 3 ([5]–[6])

The candidate correctly describes the role of three of the people involved in the Data Protection Act. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is always clear. The candidate demonstrates a good form and style appropriate to the question. The organisation of the answer is good.

Answers may include:

Information Commissioner – Responsible for enforcing the Act/Promoting good practice from those people/responsible for processing personal data/
 Making the general public aware of their rights under the Act
 Data Controller – The person in a company who is responsible for controlling the way in which personal data is processed
 Data subject – Challenge inaccurate data
 A statement about the rights of the data subject

[6]

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16 Level 0 [0]

Answer is not worthy of credit.

Level 1 ([1]–[2])

The candidate correctly describes one advantage of using a VLE for education. The candidate makes limited use of spelling, punctuation and grammar. The meaning of the text is not always clear. The candidate displays a limited form and style appropriate to the question. The organisation of the answer is limited.

Level 2 ([3]–[4])

The candidate describes correctly two advantages using a VLE for education. The candidate makes satisfactory use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a satisfactory form and style appropriate to the question. The organisation of the answer is satisfactory.

Level 3 ([5]–[6])

The candidate correctly describes three advantages of using a VLE for education. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is always clear. The candidate demonstrates a good form and style appropriate to the question. The organisation of the answer is good.

Answers may include:

Advantages

- Students can log on at any time (24/7)/anywhere
- Communication tools can facilitate lessons, e.g. synchronous chat, bulletin boards, forums, email, teacher feedback
- Students can download learning materials and upload homeworks/ coursework

Note 3 areas

- 24/7/anywhere
- Communication to include all of above
- Accessing (including upload/download/tests) learning materials

[6]

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Definition	Term
A tool provided within a software package to help users complete a task	WIZARD
A type of computer memory which cannot be written to	ROM
A computer process where the output from the system affects the input to the system	FEEDBACK
A type of slide which defines the layout of all the other slides in a presentation	MASTER
A validation check used to ensure that data has been entered by the user	PRESENCE
A data type used when the data can have only two values	BOOLEAN
The ability to transfer data files from one system to another	DATA PORTABILITY
A processing method where data is processed all at one time without human intervention	BATCH
A set of program instructions executed using a single command	MACRO
Placing a chart from a spreadsheet into a word processing document so that the chart will change when the spreadsheet data changes	LINKING OBJECTS

[10]

Total

AVAILABLE MARKS

10

180