



**For teaching from 2012
For awards from 2014**

COMPUTER SCIENCE

SPECIMEN ASSESSMENT MATERIALS

Contents

	Page
Unit 1 Written Examination	5
Unit 1 Mark Scheme	17
Unit 2 Practical Assessment	23
Unit 2 Mark Scheme	27
Unit 3 Controlled Assessment	29
Unit 3 Mark Scheme	33
Assessment Grid	36

Candidate Name	Centre Number				Candidate Number				
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GCSE

COMPUTER SCIENCE

UNIT 1: Understanding Computer Science

SPECIMEN PAPER

(1 hour 30 minutes)

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use pencil or gel pen. Do not use correction fluid.

Answer **all** questions.

Write your answers in the spaces provided in this booklet.

If you run out of space, use the continuation pages at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

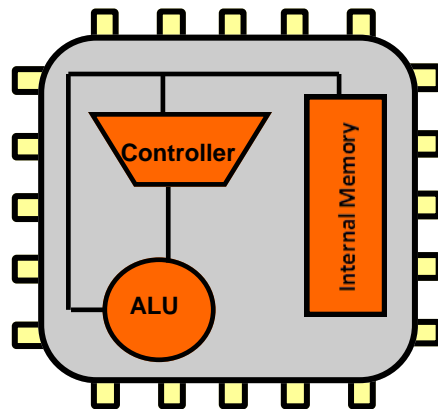
The number of marks is given in brackets at the end of each question or part-question. Quality of written communication will be assessed in question **13**.

1. Tick (✓) to show which **four** of the following are functions of an operating system. [4]

- Managing the printer
- Spellchecking
- Dealing with errors
- Sorting records
- Setting tabulation
- Handling data storage
- Managing emails
- Organising resources

2. The diagram below shows three components of a Central Processing Unit (CPU).

(a) Describe the purpose of these components. [6]



(i) Controller

.....

.....

.....

(ii) Arithmetic/Logic Unit (ALU)

.....

.....

.....

(iii) Internal Memory

.....
.....
.....

(b) Briefly describe what happens in the fetch-execute cycle. [2]

.....
.....
.....

3. Tick (✓) to show which **four** of the following are common data types provided by most programming languages. [4]

- Boolean
- Records
- Integer
- String
- Capacity
- Character
- Nybble

4. Describe the function and purpose of each of the following system maintenance tools in a computer system: [6]

Disk Compression

.....

Defragmentation

.....

System Restore

.....

5. A company has decided to network its computers so that it can share data and peripherals over a local intranet.

(a) Describe **three** different topologies that could be used to network the computers and give a different advantage for each. [6]

.....

.....

.....

.....

.....

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.....

(b) The company decides to set user access levels on the network. Explain, using a suitable example, why it should do this. [2]

.....

.....

.....

.....

6. Complete the table below to give a different example of use for each of the following storage media. In each case justify why it is the best choice. [8]

Storage Media	
Optical	Example of use
	Justification
Magnetic	Example of use
	Justification
Solid state	Example of use
	Justification
Storage in the Cloud	Example of use
	Justification

7. Describe the role of the following in a computer system: [8]

(a) Random Access Memory (RAM):

.....
.....
.....

(b) Read Only Memory (ROM):

.....
.....
.....

(c) Flash Memory:

.....
.....
.....

(d) Cache Memory:

.....
.....
.....

8. Describe the role of the operating system when managing system resources. [5]

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

9. (a) State the purpose of a Domain Name System (DNS) server. [1]

.....
.....

- (b) State the purpose of an Internet Protocol (IP) address. [1]

.....
.....
.....
.....

- (c) State two facilities that are normally available from an Internet Service Provider (ISP). [2]

.....
.....

10. Files are compressed when transmitted over the Internet.

- (a) Explain the difference between lossy and lossless compression. [2]

.....
.....

- (b) State the type of compression format for MP3 files. [1]

.....

11. (a) Complete the following table by filling in the empty cells: [5]

8		=	1	byte
	bytes	=	1	kilobyte
1024	kilobytes	=	1	
1024		=	1	gigabyte
1024	gigabytes	=	1	

(b) Complete the following *Truth Table* by writing either **False** or **True** in the last column: [4]

A	B	A and B
True	True	
True	False	
False	True	
False	False	

(c) The ASCII standard was first published in 1963 by the American Standards Association.

(i) State what the letters ASCII stand for. [1]

.....

(ii) State the purpose of ASCII. [1]

.....

.....

(iii) Convert the denary number 47 into 8-bit binary code showing details of your method of solution. [2]

.....

.....

.....

.....

(iv) Convert the denary number 26 into hexadecimal code showing details of your method of solution. [2]

.....

.....

.....

.....

12. (a) A computer program for stock taking is written in a *high level language*. Tick (✓) **two** boxes to show which of the following are *common features* of high level languages. [2]

- Written in binary
- Written in hexadecimal
- Portable
- Easily understood

- (b) High level languages need to be translated into a format that a computer can understand. State the name given to this format. [1]

.....

- (c) Define the term variable in a computer program. [1]

.....

.....

- (d) Tick (✓) **one** box to indicate which is **not** a correct variable type. [1]

- Static
- Local
- Global
- Formula



GCSE COMPUTER SCIENCE

Unit 1: Understanding Computer Science

Specimen Assessment Material

Mark Scheme

Qu.	Answer	Marks	MAX
1.	<p>One mark for each of:</p> <ul style="list-style-type: none"> Managing the printer Dealing with errors Handling data storage Organising resources 	<p>1 mark</p> <p>1 mark</p> <p>1 mark</p> <p>1 mark</p>	4
2. (a)	<p>Up to two marks for each of:</p> <p>(i) Controller: Directs the flow of instructions and data within the CPU. Coordinates the other parts of the CPU.</p> <p>(ii) ALU: The ALU performs all the mathematical calculations and logical operations in the CPU. It can add, subtract, multiply, divide, and perform a host of other calculations on binary numbers.</p> <p>(iii) Internal memory: Where data and instructions are held for use by the CPU and where the CPU puts the results it generates.</p>	<p>2 marks</p> <p>2 marks</p> <p>2 marks</p>	6
2. (b)	<p>Fetch-execute cycle: In the fetch phase an instruction is copied into the control unit and decoded. In the execute phase the instruction is obeyed.</p>	2 marks	2
3.	<p>One mark for each of:</p> <ul style="list-style-type: none"> Boolean Integer String Character 	<p>1 mark</p> <p>1 mark</p> <p>1 mark</p> <p>1 mark</p>	4
4.	<p>Up to two marks for each of:</p> <p>Disk Compression: Reducing the size of a file, to free up storage space usually for storage on backing store.</p> <p>Defragmentation: Collecting together the separate elements of split/fragmented files to improve the access speed/performance of a disk.</p> <p>System Restore: Replacing corrupt or lost data using copies from a backup system to return the data to the state before it failed.</p>	<p>2 marks</p> <p>2 marks</p> <p>2 marks</p>	6

Qu.	Answer	Marks	MAX
7.	<p>Up to two marks for each description:</p> <p>RAM: RAM is directly addressable and holds one word or byte in each location giving the same access time for each. It stores the data you are working on / stores the modules needed to make applications work / stores programs being executed / acts as a buffer for external storage devices</p> <p>ROM: Rom is used for storing the bootstrap program instructions for use when the computer starts up and fixed data used by the computer system</p> <p>Flash: Flash memory is treated as an additional installed disk drive and can be electrically erased and re-programmed</p> <p>Cache Memory: Data is read from storage into a section of memory temporarily to reduce the processing time allowing faster access to data when programs are running</p>	<p>2 marks</p> <p>2 marks</p> <p>2 marks</p> <p>2 marks</p>	8
8.	<p>One mark for each description, development or example up to a maximum of five:</p> <ul style="list-style-type: none"> • handles the memory management • handles file storage • schedules tasks for efficient use of the system • handles allocation of resources for the software that runs on the computer • handles all of the software drivers for the hardware and peripherals • handles all of the interactions between the user and the computer • presents the file structure of a hard drive in a manner that a user can understand • converts the physical motions of the user - such as moving the mouse or typing on the keyboard - for the computer 		5
9. (a)	Converts a domain name/URL into its physical/IP address	1 mark	1
(b)	It is a unique address that identifies a computer on a network such as the Internet	1 mark	1
(c)	<p>Any two of:</p> <p>web access</p> <p>email</p> <p>VoIP</p> <p>web hosting / FTP uploading</p>	<p>1 mark</p> <p>1 mark</p>	2
10. (a)	<p>Lossy: Discards detail to gain greater compression</p> <p>Lossless: Doesn't lose detail in compression</p>	<p>1 mark</p> <p>1 mark</p>	2
(b)	Lossy	1 mark	1

Qu.	Answer	Marks	MAX
11. (a)	<p>One mark for each of:</p> <p>bits</p> <p>1024</p> <p>megabyte</p> <p>megabyte</p> <p>terabyte</p>	<p>1 mark</p> <p>1 mark</p> <p>1 mark</p> <p>1 mark</p> <p>1 mark</p>	5
(b)	<p>One mark for each correct answer:</p> <p>True</p> <p>False</p> <p>False</p> <p>False</p>	<p>1 mark</p> <p>1 mark</p> <p>1 mark</p> <p>1 mark</p>	4
(c)	<p>(i) American Standard Code for Information Interchange.</p> <p>(ii) Represents characters in a binary code so that the computer can communicate.</p> <p>(iii) 00101111 One mark for method and one for correct answer</p> <p>(iv) 1A One mark for method and one for correct answer</p>	<p>1 mark</p> <p>1 mark</p> <p>2 marks</p> <p>2 marks</p>	6
12. (a)	<p>Portable</p> <p>Easily understood</p>	<p>1 mark</p> <p>1 mark</p>	2
(b)	Machine code / binary	1 mark	1
(c)	A name/symbol which represents a changeable value in a program	1 mark	1
(d)	Formula	1 mark	1

Qu.	Answer	Marks	MAX
13.	<p>9 – 12 marks Detailed discussion of the importance of conforming and using security measures responsibly and effectively. There will be few, if any, errors in spelling, grammar and punctuation. Technical terms will be used appropriately and correctly.</p> <p>5 – 8 marks Some discussion of importance of conforming and using security measures. There may be occasional errors in spelling, grammar and punctuation. Technical terms will be mainly correct.</p> <p>1 – 4 marks Superficial coverage – could be a list. Information will be poorly expressed and there will be limited, if any, use of technical terms. There are significant errors in grammar, punctuation and spelling.</p> <p>0 marks No appropriate content.</p> <p>Indicative content Examples of points which may be discussed or expanded through use of suitable examples. GOOD PRACTICE</p> <ul style="list-style-type: none"> • Only claim current competence where you can demonstrate you have the required expertise, e.g. through recognised competencies, qualifications or experience • Seek out and observe good practice exemplified by rules, standards, conventions or protocols that are relevant in your area of specialism • Think about the social consequences of the program you are writing or the system you are designing • Always use a computer in ways that ensure consideration and respect for your fellow humans • Use anti-virus software and update it regularly • Use a firewall to help prevent hacking <p>NOT GOOD PRACTICE</p> <ul style="list-style-type: none"> • Use a computer to harm other people. • Interfere with other people’s computer work • Snoop around in other people’s computer files • Use a computer to steal • Use a computer to bear false witness • Copy or use proprietary software for which you have not paid • Use other people’s computer resources without authorisation or proper compensation • Appropriate other people’s intellectual output • Pass on data without permission • Keep data about people that is incorrect or out-of-date 		12
Total marks			90



GCSE

COMPUTER SCIENCE

UNIT 2: Solving Problems Using Computers

SPECIMEN PRACTICAL ASSESSMENT

(2 hours)

INSTRUCTIONS TO CANDIDATES

You will need a computer with a functional copy of Greenfoot pre-installed.

Carry out all tasks and make sure that you check your work carefully to ensure that the work you produce is accurate and correct.

It is important that you work independently from other candidates and make sure that what you hand in is your own unaided work.

Save your work regularly.

INFORMATION FOR CANDIDATES

The quality of written communication will be assessed in task 3.

Task 1**[6]**

Copy the paragraph below on the left. Then write appropriate HTML code into it so that it will display as the paragraph below on the right on a web page.

For Sale
 Bluetooth Hands Free Car Kit
 Make calls without wearing a headset with this Bluetooth v1.2 EDF Multipoint Hands-free Speakerphone! Visit www.edfweb.com to see. Simply pair this device to any Bluetooth enabled phone and talk hands-free today!

For Sale

Bluetooth Hands Free Car Kit

Make calls without wearing a headset with this Bluetooth v1.2 EDF Multipoint Hands-free Speakerphone! Visit www.edfweb.com to see. *Simply pair this device to any Bluetooth enabled phone and talk hands-free today!*

Task 2**[9]**

eTeifi Books sell ebooks via the Internet. A customer is awarded a bonus voucher which they are able to use to save money off a future purchase if they have bought:

- more than ten ebooks
- or
- more than five ebooks with a total value of more than £50.00

Write an algorithm with inputs `NumbereBooksBought` and `TotalValueeBooksBought` and outputs either "Award bonus" or "Do not award bonus".

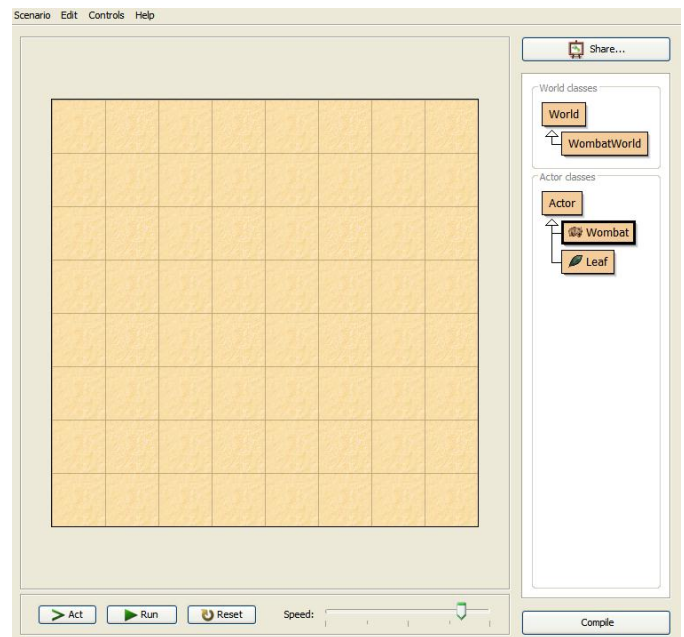
For example, with inputs

6 60

The output would be "**Award bonus**".

Task 3**[15]**

- (a) Open the Wombats scenario in Greenfoot.
- (b) Populate the world with a wombat and some leaves.
- (c) Check that the scenario is working.
- (d) Edit the program code to make the wombats turn when the left or right cursor (arrow) keys are pressed so they can move back off the edge of the world.
- (e) Add a sound which will play every time a wombat eats a leaf.
- (f) Add a stationary predator to your world which will eat the wombat if they touch and end the game.
- (g) Add a counter to display how many leaves the wombat has eaten.
- (h) Save your completed world as Wombatswjec.





GCSE COMPUTER SCIENCE

Unit 2: Solving Problems Using Computers

Specimen Assessment Material

Mark Scheme

	Answer	MAX																											
Task 1	<p>One mark for each correct pair in the correct location:</p> <p>i.e. <html> </html> <body> </body> <h1> </h1> <center> </center> <p> </p> <i> </i></p> <p>Accept either <p></p> Accept alternative tags e.g. <big></big> instead of <h1></h1>, etc Accept alternative solutions which work.</p> <p><html> <body></p> <p><h1><center>For Sale</center></h1></p> <p><p> Bluetooth Hands Free Car Kit</p></p> <p><p>Make calls without wearing a headset with this Bluetooth v1.2 EDF Multipoint Hands-free Speakerphone! Visit www.edfweb.com to see. <i>Simply pair this device to any Bluetooth enabled phone and talk hands-free today!</i></p></p> <p></body> </html></p>	6																											
Task 2	<table border="0"> <tr> <td>1</td> <td>input NumbereBooksBought</td> <td>(1 mark)</td> </tr> <tr> <td>2</td> <td>input TotalValueeBooksBought</td> <td>(1 mark)</td> </tr> <tr> <td>3</td> <td>if ((NumbereBooksBought >10)</td> <td>(1 mark)</td> </tr> <tr> <td></td> <td>OR</td> <td>(1 mark)</td> </tr> <tr> <td></td> <td>((NumbereBooksBought > 5)</td> <td>(1 mark)</td> </tr> <tr> <td></td> <td>AND</td> <td>(1 mark)</td> </tr> <tr> <td></td> <td>(TotalValueeBooksBought > 50)))</td> <td>(1 mark)</td> </tr> <tr> <td>4</td> <td>then output "Award bonus"</td> <td>(1 mark)</td> </tr> <tr> <td>5</td> <td>else output "Do not award bonus"</td> <td>(1 mark)</td> </tr> </table> <p>Line numbers not necessary Ignore indentation or lack of it Accept alternative solutions</p>	1	input NumbereBooksBought	(1 mark)	2	input TotalValueeBooksBought	(1 mark)	3	if ((NumbereBooksBought >10)	(1 mark)		OR	(1 mark)		((NumbereBooksBought > 5)	(1 mark)		AND	(1 mark)		(TotalValueeBooksBought > 50)))	(1 mark)	4	then output "Award bonus"	(1 mark)	5	else output "Do not award bonus"	(1 mark)	9
1	input NumbereBooksBought	(1 mark)																											
2	input TotalValueeBooksBought	(1 mark)																											
3	if ((NumbereBooksBought >10)	(1 mark)																											
	OR	(1 mark)																											
	((NumbereBooksBought > 5)	(1 mark)																											
	AND	(1 mark)																											
	(TotalValueeBooksBought > 50)))	(1 mark)																											
4	then output "Award bonus"	(1 mark)																											
5	else output "Do not award bonus"	(1 mark)																											
Task 3	11-15 marks	The candidate has produced a complete working solution to the task. The program is written efficiently and has been compiled. Wombats turn left and right on key press and a sound is played when a leaf is eaten. A predator eats the wombat when they touch, ending the game and displaying a leaf eaten score. The program has been written coherently, technical terms have been used correctly, the meaning is clear and there are no errors in spelling and punctuation.	15																										
	6-10 marks	The candidate has produced a working solution. The program has been compiled but one of the elements is missing or incomplete. Technical terms have been used correctly, the meaning is clear and there are few errors in spelling and punctuation.																											
	1-5 marks	The candidate has produced a partial solution to the task but there is some evidence of functionality. Technical terms, where used, are correct, but there are significant errors in spelling and punctuation.																											
	0 marks	No valid response																											
		Total marks	30																										



GCSE
COMPUTER SCIENCE
UNIT 3: Developing Computing Solutions
SPECIMEN CONTROLLED ASSESSMENT
(15 hours)

INSTRUCTIONS TO CANDIDATES

This is one of two scenarios available. Each scenario is available separately. You may choose either of the two scenarios. You will have 15 hours to complete your chosen task. Research tasks can be carried out outside timed conditions.

Read the scenario carefully to make sure that you understand what is needed.

It is important that you work independently from other candidates and make sure that what you hand in is your own unaided work.

Your report should be about 2,000 words.

Make sure that you check your work carefully to ensure that the work you produce is accurate and correct.

Save your work regularly.

INFORMATION FOR CANDIDATES

Teachers and candidates will be required to sign a declaration that all work presented is the work of the candidate alone. Failure to authenticate the work may result in grades being delayed or refused.

The quality of written communication will be assessed in your evaluation.

Scenario One

Number game application

A teacher at your school has asked you to write an application to update a number game, similar to bingo, which she uses to support learning in mathematics lessons.

The teacher has a bag containing counters numbered from 1 to 90. She draws the counters randomly and asks the pupils questions linked to the number which appears on the counter. For example, if number 63 is drawn, the question might be “What number do you get if you multiply 7 by 9?”.

Each pupil has a card with a different selection of 20 numbers arranged in a grid. Pupils circle the numbers on their cards in response to the questions asked by the teacher. The winner is the first pupil to circle all the numbers on the card.

The teacher keeps a record of the answers by placing the counters she has drawn from the bag on a sheet of squared paper, so that she can check details when a pupil claims to have won.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90

Your task is to write an application to generate random numbers and to keep a record of those numbers. Your application will replace the bag of numbered counters: the record of generated numbers will enable the teacher to check the winning card.

Produce a report fully documenting your solution to automating this process. Credit will be given for the quality of your solution. Your report should be about 2,000 words.

GUIDANCE FOR CANDIDATES

Your work for this assignment will be marked against the following assessment scheme.

Criteria	Marks
Design of solution	8 marks
Implementation	17 marks
Program documentation	5 marks
Testing	8 marks
Evaluation	12 marks



GCSE COMPUTER SCIENCE

Unit 3: Developing Computing Solutions

Specimen Assessment Material

Mark Scheme

Unit 3 - Controlled Assessment - Mark Scheme

Quality of Written Communication

The quality of written communication is assessed as an integral part of the candidate evaluation and not as a standalone element, using the following specific criteria:

- legibility of text, accuracy of spelling, punctuation and grammar, clarity of meaning
- selection of a form and style of writing appropriate to purpose and to complexity of subject matter
- organisation of information clearly and coherently, use of specialist vocabulary where appropriate

Mark Grid

Design of Solution

Max 8 marks

7 - 8 marks	The candidate has provided a detailed analysis of the task and a comprehensive description fully justifying their intended solution in terms of the programming facilities of the language software chosen. The pseudocode (or flow chart) is well annotated, showing a thorough understanding. The candidate has produced a complete suite of algorithms covering the whole solution as well as any validation required. There is a comprehensive testing strategy and evaluation criteria that will allow the performance of the completed system to be measured. The design demonstrates a clear sense of audience and purpose.
4 - 6 marks	The candidate has provided a brief analysis of the task and a basic description identifying a sufficient number of processes to provide a working solution to the given task. The pseudocode (or flow chart) is annotated, showing some understanding. The candidate has produced basic algorithms covering most of their solution and some evidence of discussion of any validation required. The candidate has devised a strategy allowing them to test most of the functionality and evaluate their completed solution. The design demonstrates some sense of audience and purpose.
1 - 3 marks	The candidate has produced a minimal solution and has briefly described some tasks but the outline of the solution is not specific for all parts of the solution. There is some evidence of use of pseudocode (or flow chart) although annotation may be absent. Some basic algorithms may be evident for part of the solution. The candidate has made brief comments on how the solution may be tested but has not referred to success criteria and the solution may be incomplete.
0 marks	No valid response.

Implementation

Max 17 marks

14 - 17 marks	The candidate has produced a fully functioning solution to the given task. They have fully exploited, as appropriate, the facilities of the chosen programming language and have demonstrated a sound understanding of the appropriate techniques available to them.
9 - 13 marks	The candidate has produced a functional solution to the given task. They have used, as appropriate, the facilities of the chosen programming language and have demonstrated an understanding of the tools and techniques used.
5 - 8 marks	The candidate has produced a solution to the given task that provides the majority of the required functionality. The candidate has used a range of the facilities of the programming language and has demonstrated some understanding of the tools and techniques used.
1 - 4 marks	The candidate has produced a partial solution to the given task. They have made some use of the facilities of the programming language, demonstrating a limited understanding of the tools and techniques used.
0 marks	No valid response.

Program Documentation		Max 5 marks
5 marks	The candidate has fully documented a solution and used appropriate self-documenting identifiers. Listings of each programming routine are appropriately laid out and contain sufficient annotation to demonstrate a sound understanding of the programming code used. The user interface is fit for audience and purpose.	
3 - 4 marks	The candidate has documented a solution with listings of all major programming routines with some evidence of use of self-documenting code and annotation, demonstrating some understanding of the programming code used. The user interface is fit for audience and purpose.	
1 - 2 marks	The candidate has produced some listings of the programming routines used but there is little evidence of self-documenting code or annotation.	
0 marks	No valid response.	
Testing		Max 8 marks
6 - 8 marks	The test plan covers all the success criteria and the candidate has included extensive evidence of thorough testing of the completed solution with an informed commentary of the testing process.	
3 - 5 marks	The test plan covers most of the success criteria and the candidate has included evidence of thorough testing of the completed solution and included commentaries describing the testing process.	
1 - 2 marks	The candidate has included brief evidence of some testing but the solution may be incomplete.	
0 marks	No valid response.	
Evaluation including Quality of Written Communication		Max 12 marks
10 - 12 marks	The candidate has produced an informed discussion of the performance of the completed solution against the evaluation criteria. The candidate is able to make valid and detailed suggestions for further improvements. The text is legible, information is organised clearly and coherently with correct use of specialist vocabulary where appropriate and meaning is clear. Spelling, punctuation and grammar are accurate. The form and style of writing is appropriate to purpose and to the complexity of the subject matter.	
7 - 9 marks	The candidate has produced a discussion of the performance of the solution against the evaluation criteria and has made some valid suggestions for further improvements to the solution. The text is legible, information is organised clearly with correct use of specialist vocabulary where appropriate and meaning is clear. Spelling, punctuation and grammar are accurate. The form and style of writing is appropriate to purpose and the subject matter.	
4 - 6 marks	There is some discussion of the performance of the solution measured against the evaluation criteria. The candidate is able to make some suggestions for further improvements to the solution. The text is legible and specialist vocabulary, where used, is appropriate. There may be errors in spelling, punctuation and grammar.	
1 - 3 marks	The evaluation is superficial. Comments lack clarity and are expressed in everyday language. Suggestions for improvements are limited or absent. There are significant errors in spelling, punctuation and grammar.	
0 marks	No valid response	
		Total 50 marks

GCSE COMPUTER SCIENCE ASSESSMENT GRID

Unit 1	Assessment Objectives Raw Marks			Total Raw Mark	QWC
	AO1	AO2	AO3		
1	4			4	
2	8			8	
3	4			4	
4	6			6	
5	6		2	8	
6		4	4	8	
7	8			8	
8		5		5	
9	4			4	
10	2	1		3	
11	7	8		15	
12	5			5	
13			12	12	✓
Total Marks	54	18	18	90	

Unit 2	AO1	AO2	AO3	Total Raw Mark	QWC
Task 1	6			6	
Task 2		9		9	
Task 3		10	5	15	✓
Total Marks	6	19	5	30	

Unit 3	AO1	AO2	AO3	Total Raw Mark	QWC
Design		2	6	8	
Implementation		17		17	
Program Documentation	4	1		5	
Testing		4	4	8	
Evaluation			12	12	✓
Total Marks	4	24	22	50	