

## 6-A-Day – Computer Science GCSE (6)

Q1	<p>The school decides to use the star topology to create the LAN. Describe what is meant by a star topology. You may use a diagram. A hub / server at the centre of the network (1).All computers attached to the hub/server (1). Resources (e.g. printer) can also be attached to hub/server (1) An appropriate diagram to represent this information is also acceptable. Max 2.</p>	[2]
Q2	<p>State the final values of the variables A and B if the values at the beginning of the code are A = 4 B = 9 Final value of A = 4 Final value of B = 9</p> <p>A = 6 B = 2 Final value of A = 2 Final value of B = 2</p>	[2]
Q3	<p>Rewrite the code so that the contents of the variables are swapped correctly. Example: If A &gt; B Then Temp = A A = B B = Temp End If</p> <p>Award Marks for:</p> <ul style="list-style-type: none"><li>• Contents of one variable stored in a temp variable</li><li>• Second variable swapped into first</li><li>• Temp variable used to update second variable</li></ul> <p>(accept solutions with 2 temp variables) Max 3.</p>	[3]

Q4

Possible test cases include:

Test data	Reason for test	Expected outcome
298	To see if numbers shorter than 4 digits are rejected	Error message: The number entered is too short.
Exactly 4 digits (and in the member file)	To confirm that it works	Success
More than 4 digits	To see if numbers longer than 4 digits are rejected	Error message: The number entered is too long.
Input missing	To see if input is required	Error message: No number has been entered
Non numeric characters	To see if non numeric characters are accepted	Error message: The data contains non numerical characters
A PIN which does not exist in the customer file (accept any test data with explanation)	To see if any 4 digit number can be entered	Error message: The number entered does not exist in the customer file.

Do not allow marks if the reason for test is repeated (e.g. two tests for numbers shorter than 4 digits).

[Award 1 mark per box]

[6]

Q5

State the output(P) of the circuit if the inputs are:

A = 1    B = 0

- P = 1

[1]

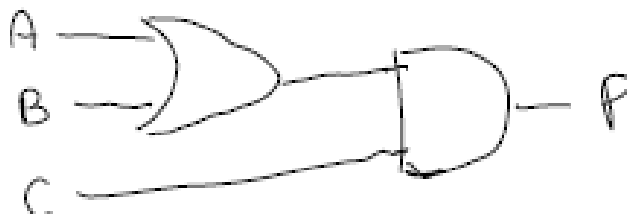
A = 1    B = 1

- P = 0

[1]

Q6

Example:



- A and B OR'ed in the circuit
- The output is AND'ed with C

[2]

## 6-A-Day – Computer Science GCSE (7)

Q1	<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 80%;"></th> <th style="width: 10%;">Form</th> <th style="width: 10%;">Query</th> <th style="width: 10%;">Report</th> </tr> </thead> <tbody> <tr> <td>This can be used to print out all the appointments that the dentist has booked.</td> <td></td> <td></td> <td style="text-align: center;">✓</td> </tr> <tr> <td>This can be used to enter a patient's details when the patient registers with the dentist.</td> <td style="text-align: center;">✓</td> <td></td> <td></td> </tr> <tr> <td>This can be used to find out all the appointments that a certain patient has made.</td> <td></td> <td style="text-align: center;">✓</td> <td></td> </tr> </tbody> </table> <p>1 mark per row</p>		Form	Query	Report	This can be used to print out all the appointments that the dentist has booked.			✓	This can be used to enter a patient's details when the patient registers with the dentist.	✓			This can be used to find out all the appointments that a certain patient has made.		✓		<b>[3]</b>
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Q2	<p><b>When a patient makes an appointment, the start time of the appointment needs to be validated.</b>  <b>State <u>two</u> validation checks which can be carried out on the start time of the appointment.</b></p> <p>Two from:</p> <ul style="list-style-type: none"> <li>• The time is in the correct format / hh:mm</li> <li>• The time is within the dentist's working day</li> <li>• The hours are in the range 1 – 12 / 0 – 24</li> <li>• The minutes are in the range 0 – 59</li> </ul> <p>Accept other correct validation checks.</p>	<b>[2]</b>																
Q3	<p><b>Justify the use of separate entities to store the patient and appointment data.</b></p> <ul style="list-style-type: none"> <li>• The patient's data does not have to be repeated for each appointment...</li> <li>• ... as the patient ID can be stored with the appointment to link the two entities</li> <li>• Allows the patient (and appointment data) to be manipulated independently e.g. if the name of the patient changes.</li> <li>• Avoids the possibility of the patient data becoming inconsistent due to being stored multiple times</li> </ul> <p>(1 mark for each bullet. Max 3 marks)</p>	<b>[3]</b>																

Q4	<p>A display board can show a flashing message of up to 20 characters.</p> <p>A program allows users to input the message to be displayed and the number of times it should flash.</p> <p>State the data type of each item of the input data.</p> <ul style="list-style-type: none"> <li>• Message: String</li> <li>• Number of flashes: Integer</li> </ul>	<p>[1]</p> <p>[1]</p>						
Q5	<p>EXAMPLE</p> <pre> Begin   Input Message   Input NumberOfFlashes   If length(Message) &gt; 20 Then     Output "This message is too long"   Else     For i = 1 to NumberOfFlashes       Display Message       Wait       Clear Message       Wait     Next   End If End </pre> <p>Award marks for an algorithm which:</p> <ul style="list-style-type: none"> <li>• Inputs message and number of flashes</li> <li>• If length of message &gt; 20, output error message and stop</li> <li>• Otherwise <u>run a loop</u> which will</li> <li>• ... flash the message</li> <li>• ... for the correct number of times</li> </ul> <p>Max 5.</p>	<p>[5]</p>						
Q6	<table border="1"> <thead> <tr> <th>Expected Answer</th> <th>Mark</th> <th>Additional Guidance</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> <li>• To carry out the processing on the computer/To (fetch and) execute instructions'</li> </ul> </td> <td> <p>[1]</p> </td> <td> <p>"control" the computer is too vague</p> </td> </tr> </tbody> </table>		Expected Answer	Mark	Additional Guidance	<ul style="list-style-type: none"> <li>• To carry out the processing on the computer/To (fetch and) execute instructions'</li> </ul>	<p>[1]</p>	<p>"control" the computer is too vague</p>
Expected Answer	Mark	Additional Guidance						
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## 6-A-Day – Computer Science GCSE (8)

Q1	<p>3MHz. Two from</p> <ul style="list-style-type: none"><li>• 3MHz is the <u>clock speed</u> / how fast the processor is</li><li>• Indicates how many instructions may be processed in each second</li><li>• Indicates how many clock cycles per second</li></ul>	[2]
	<p>Quad core</p> <ul style="list-style-type: none"><li>• The computer has <u>4 cores</u>...</li><li>• ...which are independent processors within the CPU ..</li><li>• ... working simultaneously / can perform multiple tasks</li></ul>	[2]
Q2	<p>Two from:</p> <ul style="list-style-type: none"><li>• To share the printer</li><li>• To share the internet connection</li><li>• To share files</li><li>• To communicate with each other eg by email</li></ul>	[2]
Q3	<ul style="list-style-type: none"><li>• <math>128 + 16 + 4 + 2 + 1</math></li><li>• 151</li></ul>	[2]

Q4

	ROM	RAM
Programs and data which are currently in use are loaded here		✓
All the contents are lost when the power is turned off.		✓
It is used to boot up the computer when it is switched on.	✓	

1 mark per correct row

[3]

Q5

Expected Answer	Mark
<ul style="list-style-type: none"> <li>Software created especially for a user/the restaurant</li> </ul>	[1]

Additional Guidance
Do not accept "for a specific purpose" unless candidate indicates that there is a user who determines the purpose.

Q6

- A real world object
- ... about which data is stored in a database
- Corresponds to tables in the database

[2]





# 6-A-Day – Computer Science GCSE (9)

Q1	<p>Input device:</p> <ul style="list-style-type: none"><li>• Joystick</li><li>• To control the CCTV cameras</li><li>• ... to zoom/tilt/pan</li><li>• ... as they allow precise movements (in 2 axis)</li> <li>• Keyboard</li><li>• To type commands into the system...</li><li>• ... to perform complex control tasks</li><li>• Key presses can be used to control the cameras</li></ul> <div style="border: 1px solid black; padding: 5px;"><p>Allow follow through if a device has the correct use even if it is not identified as the correct type. (e.g. Joystick as output device)</p><p>Reason has to relate has to relate to stem</p></div>
Q2	<p>Output device:</p> <ul style="list-style-type: none"><li>• Monitor/Array of monitors</li><li>• Show the output of cameras</li><li>• Showing multiple cameras at a time</li> <li>• Printer</li><li>• To print hard copy images from the recordings</li><li>• eg to be used as evidence</li></ul> <div style="border: 1px solid black; padding: 5px;"><p>Allow follow through if a device has the correct use even if it is not identified as the correct type. (e.g. Joystick as output device)</p><p>Reason has to relate has to relate to stem</p></div>
Q3	<p>Storage device</p> <ul style="list-style-type: none"><li>• hard disk drive with large capacity</li><li>• to record feed from all cameras...</li><li>• ... simultaneously</li><li>• ... allows direct access to any part of the recording</li> <li>• rewritable large optical drive/removable flash storage</li><li>• to save recordings (eg for a given day)</li><li>• for archiving purposes</li></ul> <p>Other valid answers will be accepted. (1 mark for naming the device and up to 2 for explaining why needed)</p> <div style="border: 1px solid black; padding: 5px;"><p>Allow follow through if a device has the correct use even if it is not identified as the correct type. (e.g. Joystick as output device)</p><p>Reason has to relate has to relate to stem</p></div>

<p>Q4</p>	<p>Points to be made include:</p> <ul style="list-style-type: none"> <li>• Open source – licence-free, the restaurant will make the software and its source code available for others to use/improve.</li> <li>• Financial implications include: no need to pay for license, can reuse/adapt free open source software which is similar BUT loss of development costs/software will be available to competitors</li> <li>• Quality implications include: large community of open source developers can see and comment on code or can be consulted/ software has to conform to certain standards to be released under public licence BUT open source code is used as is, with no guarantees,</li> <li>• Ethical implications include: Open source encourages "open culture" values - free sharing, collaboration BUT restaurant is a business trying to make a profit.</li> </ul>	<div style="border: 1px solid black; padding: 5px;"> <p>High Level Response(5/6): A good discussion of open source software including reference to at least of 2 of ethical, financial or quality implications, discussing both merits and limitations; There will be few if any errors in spelling, grammar and punctuation. Technical terms will be used appropriately and correctly.</p> <p>Medium Level Response (3/4) clear understanding of open source software; at least 1 of ethical, financial or quality implications; mainly one-sided (for or against); There may be occasional errors in spelling, grammar and punctuation. Technical terms will be mainly correct.</p> <p>Low level response (0/2): They may be an attempt to define open source software, but little or no attempt to discuss the implications, or discussion contains several factual errors; Information will be poorly expressed and there will be a limited, if any, use of technical terms. Errors of grammar, punctuation and spelling may be intrusive.</p> </div> <p>[6]</p>
<p>Q5</p>	<ul style="list-style-type: none"> <li>• All the characters which are recognised/can be represented by the computer system</li> </ul>	<p>[1]</p>
<p>Q6</p>	<ul style="list-style-type: none"> <li>• An error in the rules/grammar of the language</li> <li>• Any suitable example</li> </ul>	<p>[2]</p> <p>"A spelling error" is acceptable as an example but not as a definition of syntax error. So e.g. "A spelling error such as ED IF instead END IF" is worth 1 mark only.</p>

## 6-A-Day – Computer Science GCSE (10)

Q1	<ul style="list-style-type: none"><li>• Primary Key: PupilNumber</li><li>• It is a <u>unique identifier</u></li><li>• Two pupils cannot have the same PupilNumber...</li><li>• ... but they can have the same surname, firstname or ClassCode</li></ul> <p>1 for primary key + any other 2 bullet points</p>	[3]
Q2	<ul style="list-style-type: none"><li>• ClassCode is used here as a <u>foreign key</u></li><li>• To link CLASS and PUPIL</li><li>• Using the ClassCode, all the class details can be retrieved from the Class table</li><li>• ... otherwise the class details will have to be rewritten everytime/to avoid data redundancy</li></ul> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"><p>Explanations must link the two entities. e.g. "To find out in which class a pupil is" or "to create lists of students by class" is too vague as it does not require the ClassCode in CLASS to be the same as in PUPIL.</p></div>	[3]
Q3	<p>Two from:</p> <ul style="list-style-type: none"><li>• A data structure/collection of several variables</li><li>• Under one name</li><li>• Each individual variable is given an index</li><li>• by which it is referred within the array</li></ul>	[2]

Q4	<ul style="list-style-type: none"><li>• Error messages/translator diagnostics</li><li>• Produced when translating/by the compiler</li><li>• ... or on the fly while writing code</li><li>• Attempts to tell you what the error is</li><li>• And indicate where the error is/line numbers/underlines</li><li>• Editor...</li><li>• ... allows you to enter the corrected code</li></ul>	[4]
<div style="border: 1px solid black; padding: 5px; display: inline-block;">Translator includes compiler/interpreter</div>		
Q5	<ul style="list-style-type: none"><li>• Each character is given a numeric code</li><li>• Including symbols, digits, upper and lower case</li><li>• This code is then stored in binary</li><li>• Each character takes 1 byte</li><li>• Text is stored as a series of bytes (1 per character)</li><li>• Some codes are reserved for control characters (eg TAB, Carriage Return)</li></ul>	[3]
Q6	<ul style="list-style-type: none"><li>• Unicode has a much larger character set</li><li>• ... and can represent many more characters/characters from all alphabets</li><li>• Because unicode uses 16 bits...</li><li>• ... and ASCII uses fewer/7/8 bits</li></ul>	[2]



## 6-A-Day – Computer Science GCSE (11)

Q1	<ul style="list-style-type: none"><li>0</li></ul>
Q2	<ul style="list-style-type: none"><li>12</li></ul>
Q3	<ul style="list-style-type: none"><li>4</li></ul>

Q4	<p>Test data :        1 1 3/1 1 4/1 1 5/1 1 6/2 2 5/2 2 6</p> <p>Expected output: -1   -2   -3   -4   -1   -2</p> <p>Award one mark for correct test data, and one mark for the correct corresponding outcome.</p> <p style="text-align: right;">[2]</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;">Accept dice in different order</div>
Q5	<ul style="list-style-type: none"><li>Data type: Integer</li><li>Reason: A dice roll is always a whole number (between 1 and 6)</li><li>Size: 3</li><li>one element is needed for each dice</li></ul> <p style="text-align: right;">[4]</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;">Accept size of array in bits/bytes = 3 * size of an integer if this is clear in the response.</div>

Q6

**High Level Response(5/6):** A good understanding with detailed descriptions of the role of both software and hardware in social networking; There will be few if any errors in spelling, grammar and punctuation. Technical terms will be used appropriately and correctly.

**Medium Level Response (3/4):** some awareness shown of the impact of software and hardware in social networking, with good descriptions of one of these; There may be occasional errors in spelling, grammar and punctuation. Technical terms will be mainly correct.

**Low level response (0/2):** There may be some discussion of social networking but with little or no reference to developments in hardware or software; Information will be poorly expressed and there will be a limited, if any, use of technical terms. Errors of grammar, punctuation and spelling may be intrusive.

Points may include:

- **Hardware:** Computers faster & more capable of high speed Internet access – allows video and voice communication; large server farms and cheaper storage enables the infrastructure behind large social networking websites; convergence of computers with other digital technology (eg phones, television sets) allows continuity of networking over several formats.
- **Software:** Open standards and increased use of server side software (eg php) allow social networking sites to operate across all platforms. Open protocols allow several clients to use the same services or allow software to be written to allow different services to sync with each other; coexist. Software increasingly easier to use and easily adopted by younger generation.

[6]

## 6-A-Day – Computer Science GCSE (12)


Q1	<ul style="list-style-type: none"><li>• Bus “line” shown</li><li>• Terminators shown at each end of bus</li><li>• 3 computers attached to bus</li><li>• Printer attached to bus or to a computer</li><li>• Internet connection connected to Router or to a computer</li><li>• Network adapters are needed on each computer</li><li>• Router needed to share the Internet connection</li><li>• Cables needed to connect the different devices</li></ul> <p style="text-align: right;">[6]</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;">Do not accept hub/switch unless there is a clear indication that there is a logical bus IN the hub/switch</div>		
Q2	<table style="width: 100%; border-collapse: collapse;"><tr><td style="text-align: center; width: 80%;"><math display="block">\begin{array}{cccccccc} 1 &amp; 0 &amp; 0 &amp; 1 &amp; 0 &amp; 1 &amp; 1 &amp; 1 \\ 1 &amp; 1 &amp; 0 &amp; 1 &amp; 1 &amp; 0 &amp; 0 &amp; 0 \\ 0 &amp; 1 &amp; 1 &amp; 0 &amp; 1 &amp; 1 &amp; 1 &amp; 1 \\ 1 &amp; &amp; &amp; 1 &amp; &amp; &amp; &amp; \end{array}</math></td><td style="width: 20%; vertical-align: middle; border-left: 1px solid black; padding-left: 10px;">Accept 9 bit answers</td></tr></table> <p>Mark points for:</p> <ul style="list-style-type: none"><li>• First nibble correct with carries shown</li><li>• Second nibble correct</li><li>• There is an overflow...</li><li>• ... because the result &gt; 255/cannot be represented in 8-bits</li></ul> <p style="text-align: right;">[3]</p>	$\begin{array}{cccccccc} 1 & 0 & 0 & 1 & 0 & 1 & 1 & 1 \\ 1 & 1 & 0 & 1 & 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 0 & 1 & 1 & 1 & 1 \\ 1 & & & 1 & & & & \end{array}$	Accept 9 bit answers
$\begin{array}{cccccccc} 1 & 0 & 0 & 1 & 0 & 1 & 1 & 1 \\ 1 & 1 & 0 & 1 & 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 0 & 1 & 1 & 1 & 1 \\ 1 & & & 1 & & & & \end{array}$	Accept 9 bit answers		
Q3	<p>Two from:</p> <ul style="list-style-type: none"><li>• Appropriate software may not exist</li><li>• Existing software may not do exactly what restaurant wants</li><li>• Existing software may not be compatible with restaurant’s hardware</li><li>• Existing software may contain additional features (more complex and expensive)</li></ul> <p style="text-align: right;">[2]</p>		



Q4	<p>Example</p> <pre> BEGIN RollTheDice   i = 1   WHILE i &lt;= 3     DiceRoll(i) = Random No   END WHILE END </pre> <p>Award marks for:</p> <ul style="list-style-type: none"> <li>• Using a loop</li> <li>• i (or equivalent) initialised correctly</li> <li>• correct end condition for loop/loops the required number of times</li> <li>• Correct use of i (or equivalent) in DiceRoll(i)</li> </ul>	[4]
Q5	<ul style="list-style-type: none"> <li>• A Database Management System/Used to manage the database</li> <li>• May use SQL/allows database to be queried</li> <li>• Provides facilities for creating tables/inserting data/viewing data/reporting</li> <li>• Allows data structure to be independent of the program</li> <li>• Allows relationships to be created between tables/Maintains integrity</li> <li>• Provides security features/levels of access</li> </ul>	[3]
Accept other relevant points.		
Q6	<ul style="list-style-type: none"> <li>• HyperText Mark-up Language</li> <li>• Text file containing the text to be displayed...</li> <li>• ... uses tags which indicate how to display it</li> <li>• ... location of pictures/other elements to include</li> <li>• ... and hyperlinks to other locations/URLS</li> </ul>	[2]
Accept other valid answers		

## 6-A-Day – Computer Science GCSE (13)

Q1	<ul style="list-style-type: none"><li>• Storage: device used to store data (in binary format for processing later)</li><li>• Input: device used to enter data into the computer</li><li>• Output: device used to present information/the result of processing to the user</li></ul>	<b>[3]</b>
Q2	<p>High Level Response (5/6): A good understanding with detailed descriptions of a range of relevant input as well as output devices; The information will be presented in a structured and coherent form. There will be few if any errors in spelling, grammar and punctuation. Technical terms will be used appropriately and correctly.</p> <p>Medium Level Response (3/4); awareness of relevant input and output devices with either a range with descriptions although these may be weak for some devices; The information will be presented in a structured format. There may be occasional errors in spelling, grammar and punctuation. Technical terms will be mainly correct.</p> <p>Low level response (0/2): Some relevant devices may be listed with few if any descriptions; Information will be poorly expressed and there will be a limited, if any, use of technical terms. Errors of grammar, punctuation and spelling may be intrusive.</p> <p>Points may include:</p> <p>Input devices:</p> <ul style="list-style-type: none"><li>• Puff-suck switch: allows mobility impaired users to control eg clicking a mouse, by sucking or blowing through a tube</li><li>• Simplified/concept keyboards eg for Braille, or larger keys</li><li>• Eye tracking input – Camera is used to follow the users eye movements and use these to control eg movement of mouse on screen.</li></ul> <p>Output device:</p> <ul style="list-style-type: none"><li>• Braille printer – print documents on paper in braille as raised bumps. Some brailers have plastic bumps which can be raised or lowered by software, so output does not have to be on paper.</li><li>• Text to speech</li><li>• Screen magnifiers</li></ul>	<b>[6]</b>

Q3	<ul style="list-style-type: none"> <li>• Web browser used to interpret the file and display the data correctly</li> <li>• Because it is an open/accepted standard...</li> <li>• ... data will display correctly on all browsers</li> <li>• ... which conform to the standard</li> </ul>	[2]
Q4	<ul style="list-style-type: none"> <li>• It reduces the size of the file which needs to be transmitted</li> <li>• Shortens download time</li> <li>• Reduces Internet traffic (and hence probability of lost packets)</li> <li>• Allows multimedia files to be streamed</li> </ul>	[2]
Q5	<ul style="list-style-type: none"> <li>• In lossy compression, when the data is uncompressed it is not exactly the same as the original</li> <li>• But the difference is so small that it cannot normally be noticed</li> <li>• Eg music files(mp3), large resolution images for displaying on small screens.</li> <li>• In lossless compression, when the data is uncompressed it is restored completely to the original file</li> <li>• Eg compressed text files.</li> </ul> <p>(1 mark per bullet, but maximum of 3 if no examples given).</p>	[4]
Q6	 <ul style="list-style-type: none"> <li>• A B input into an AND gate</li> <li>• Result from AND gate put through a NOT gate (to give P)</li> </ul>	[2]

Accept use of NAND gate for 2 marks  
Award 1 mark for diagram of (NOT A) AND (NOT B)

## 6-A-Day – Computer Science GCSE (14)

Q1	<table><tr><td>A</td><td>B</td><td>P</td></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>0</td></tr></table> <p>1 mark per correct row</p>	A	B	P	0	0	0	0	1	1	1	0	0	1	1	0	[3]
A	B	P															
0	0	0															
0	1	1															
1	0	0															
1	1	0															
Q2	<p><b>Antivirus</b></p> <ul style="list-style-type: none"><li>• Scans the computer <u>periodically</u></li><li>• To check if any software has been installed which contains code that may harm the computer</li><li>• Removes/quarantines these programs / notifies the user</li><li>• Prevents these programs from being installed</li><li>• Protects the computer by preventing important files (eg the boot sector or operating system) from being changed</li></ul>	[2]															
Q3	<p><b>Disk defragmenter</b></p> <ul style="list-style-type: none"><li>• Moves (parts of) of files around so that all parts of a file are stored together (allowing files to be accessed more quickly)</li><li>• Free space is collected together (allowing large files to be saved easily)</li></ul>	[2]															

Q4	<ul style="list-style-type: none"> <li>• <math>6 * 16 (= 96) / 10</math> (for A)</li> <li>• 106</li> </ul>	[2]
Q5	<ul style="list-style-type: none"> <li>• Hex numbers are shorter/more memorable than equivalent binary numbers..</li> <li>• ... and can easily be converted to and from binary...</li> <li>• ... as each hex digit corresponds to 4 binary digits (accept diagram)</li> </ul>	[2]
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>Do not accept “uses less memory” and similar as being the same as “shorter”</p> </div>		
Q6	<p>Marks in pairs</p> <ul style="list-style-type: none"> <li>• An integer is a whole number</li> <li>• A real number can include decimal fractions</li> </ul>	[2]

## 6-A-Day – Computer Science GCSE (15)

Q1	<ul style="list-style-type: none"><li>• Constant: Pi</li><li>• Variables: WheelSize, Circumference</li></ul>	[2]
Q2	<ul style="list-style-type: none"><li>• The value of a constant is set when the constant is declared</li><li>• The value of a variable is set while the program is running</li><li>• The value of a constant cannot be changed once the program is running/can only be set at design time</li><li>• A variable has no value at design time</li></ul>	[2]
Q3	0110 1010 (1 mark per nibble)	[2]



Q4

3D  
(1 mark per digit)

[2]

Award 1 mark if candidate makes a sensible attempt to convert to denary and then hex but makes an arithmetic error in the process.

Q5

File	File Format
A high resolution image of the band to use as your desktop background.	JPG
Sheet music of their songs ready to be printed in the correct format for guitar players.	PDF
A short video extract from their latest concert tour.	MPEG
A compressed collection of 200 plain text files containing the lyrics of all their songs.	ZIP
An audio recording of a song from their future album.	MP3

(1 mark per row)

[5]

Q6

- A Database Management System/Used to manage the database
- May use SQL/allows database to be queried
- Provides facilities for creating tables/inserting data/viewing data/reporting
- Allows data structure to be independent of the program
- Allows relationships to be created between tables/Maintains integrity
- Provides security features/levels of access

[3]

Accept other relevant points.