

6-A-Day – Computer Science GCSE (45)

Q1	<ul style="list-style-type: none"> IP addresses can be changed / are allocated as needed MAC addresses can't be changed / every device has a fixed MC address IP(v4) addresses are 4 bytes long MAC addresses are 6 bytes long IP(v4) addresses are normally written in denary MAC addresses are normally written in Hex IP addresses are configured by software MAC addresses are configured in hardware IP addresses are used for routing across a WAN/internet MAC addresses are only used within the LAN <p>[marks in pairs, maximum 2 pairs]</p>	4	<p>For bullets 3 and 4, accept answers where candidates refer to IPv6 being 16 bytes(128 bits). Award one mark if candidates state that IP addresses and MAC addresses are of different size.</p>												
Q2	<ul style="list-style-type: none"> Redundant components/hardware/capacity (servers/disks/routers etc) is built into the network If there is a failure, network automatically <u>switches</u> to use the spare capacity Allows the bank to continue to operate / avoids network downtime avoiding loss of income /customer dissatisfaction/ loss of records / other example related to the bank 	4													
Q3	<ul style="list-style-type: none"> The characters/symbols a <u>computer</u> uses/understands/displays 	1	<p>This has to explain what the set is, not how they are stored.</p> <p>0 marks for:</p> <ul style="list-style-type: none"> The characters for coding/programming the amount/number of/quantity of characters 												
Q4	<p>1 mark each</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;">Hex:</td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">F</td> <td style="padding: 5px;">6</td> <td style="padding: 5px;">4</td> <td style="padding: 5px;">A</td> </tr> <tr> <td style="padding: 5px;">Binary:</td> <td style="padding: 5px;">0001</td> <td style="padding: 5px;">1111</td> <td style="padding: 5px;">0110</td> <td style="padding: 5px;">0100</td> <td style="padding: 5px;">1010</td> </tr> </table>	Hex:	1	F	6	4	A	Binary:	0001	1111	0110	0100	1010	2	<p>Allow 100 for 4</p>
Hex:	1	F	6	4	A										
Binary:	0001	1111	0110	0100	1010										
Q5	<ul style="list-style-type: none"> Unicode has more characters/space (to store the emoji) Unicode is 16 bit/1-4bytes compared to ASCII's 7/8 bits 	2	<p>Allow the opposite for bullet 1 i.e. ASCII does not have enough space</p> <p>Allow any acceptable format for Unicode e.g. 1, 2, 3 or 4 bytes long</p> <p>Allow numeric quantities in place of bits/bytes for bullet 2</p>												
Q6	<p>Points may include:</p> <p>Legal</p> <ul style="list-style-type: none"> Data Protection Act Rules of DPA Keeping data secure, need for firewall, anti-virus Methods of restricting access Intellectual property/copyright/licences <p>Ethical</p> <ul style="list-style-type: none"> Storing and access to personal information Rules/terms set up before people can join Consequences for misconduct e.g. cyberbullying Plagiarism Communication of inappropriate materials for students/school/teacher Backing up to preserve/save data Gaining parental consent for communication online E-safety Acceptable use policy 	6	<p>High Level Response (5-6): A detailed discussion of the ethical and legal issues, with clear explanations that are linked to the scenario. 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): A description of some ethical and/or legal issues with some explanation/justification. Material may not be explicitly linked to the context. There may be occasional errors in spelling, grammar and punctuation. Technical terms will be mainly correct.</p> <p>Low Level Response (1-2): There is an attempt to describe either a legal issue and/or ethical issue. The points are poorly expressed and/or not related to the context. There is limited, if any, use of technical terms. Errors in grammar, punctuation and spelling may be intrusive.</p>												