

Revision Sheet

A-Level Computer Science · Unit 6 Security, privacy and data integrity

15 vocabulary items · 34 marks of exam questions (5 questions)

Part 1 · Vocabulary review answer key. Section A wants the exact English spelling.

Question	Answer	Marks
1	security	1
2	unauthorised	1
3	privacy	1
4	integrity	1
5	malware	1
6	virus	1
7	networks	1
8	spyware	1
9	phishing	1
10	encryption	1
11	validation	1
12	check digit	1
13	verification	1
14	parity check	1
15	checksum	1

16	<p>1 mark for each correct line.</p> <table border="1"> <thead> <tr> <th>Security feature</th><th>Description</th></tr> </thead> <tbody> <tr> <td>firewall</td><td>converts data to an alternative form</td></tr> <tr> <td>pharming</td><td>redirects a user to a false website</td></tr> <tr> <td>anti-virus software</td><td>verifies the authenticity of data</td></tr> <tr> <td>encryption</td><td>scans files on the hard drive for malicious software</td></tr> <tr> <td></td><td>accepts or rejects incoming and outgoing packets based on criteria</td></tr> </tbody> </table>	Security feature	Description	firewall	converts data to an alternative form	pharming	redirects a user to a false website	anti-virus software	verifies the authenticity of data	encryption	scans files on the hard drive for malicious software		accepts or rejects incoming and outgoing packets based on criteria
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17(a)	<p>1 mark per bullet point</p> <ul style="list-style-type: none"> Security protects data against loss Privacy protects data against unauthorised access
17(b)	<p>1 mark for a correct answer</p> <ul style="list-style-type: none"> Two factor authentication Biometric passwords Key Card Access Firewall
17(c)	<p>1 mark per correct answer to max 2</p> <ul style="list-style-type: none"> Malware // viruses // spyware // by example Hacking Phishing Pharming

18(a)	Security prevents against loss while privacy prevents unauthorised access
18(b)	<p>1 mark for identifying threat, 1 mark for description, 1 mark for security measure (times 2)</p> <p>e.g.</p> <ul style="list-style-type: none"> • Malware • Malicious software that replicates and can delete/damage the examination papers • Install and run anti-malware • Hacker/unauthorised access • Illegal access in order to delete/damage the examination papers • Use a firewall // strong passwords • Spyware • Software installed on the computer without the teacher's knowledge which records keystrokes and sends the data gathered about the examination papers to a third party • Use a firewall / install and run anti-spyware / use a virtual (onscreen) keyboard

19(a)(i)	<p>1 mark for each method of ensuring authenticity (max 2):</p> <ul style="list-style-type: none"> • (email) message put through hashing algorithm to produce a digest • Digest encrypted with <u>sender's private</u> key (to create the digital signature) • the (digital) signature can only be decrypted with matching <u>sender's public</u> key
19(a)(ii)	<p>1 mark for each bullet point:</p> <ul style="list-style-type: none"> • monitors <u>incoming</u> and <u>outgoing</u> packets / traffic • checks against an allow list / deny list of IP addresses // checks against a set of rules for acceptable data / ports etc. • blocks transmissions that do not meet criteria / rules // allows through is satisfies the criteria /rules
19(b)(i)	<p>1 mark for each bullet point (max 2):</p> <ul style="list-style-type: none"> • improves the accuracy of the sound file • ... because (digital) waveform more closely resembles the analogue waveform • quantization errors are reduced • increases the amount of detail stored
19(b)(ii)	<p>1 mark for each bullet point:</p> <ul style="list-style-type: none"> • decreases the file size of the sound file • ... because fewer bits are used to store each sample

20(a)	1 mark per bullet point <ul style="list-style-type: none"> • security is protecting data from loss / corruption • integrity is ensuring the consistency / accuracy of the data
20(b)(i)	1 mark per bullet point <ul style="list-style-type: none"> • validation checks that data is reasonable / sensible • example e.g. checking data is the right number / type of characters
20(b)(ii)	1 mark per bullet point <ul style="list-style-type: none"> • verification checks that data is the same as the original • by example e.g. double entry
20(c)	1 mark per similarity to max 2 <ul style="list-style-type: none"> • Both are pieces of malicious software • Both are downloaded / installed/run without the user's knowledge • Both can pretend to be / are embedded in other legitimate software when downloaded // both try to avoid the firewall • Both run in the background 1 mark for difference <ul style="list-style-type: none"> • Virus can damage computer data; spyware only records / accesses data • Virus does not send data out of the computer; spyware sends recorded data to third party • Virus replicates itself; spyware does not replicate itself