

## 1.4 Network Security – Past Exam Questions

1.4 – Network security	
Sub topic	Guidance
<b>1.4.1 Threats to computer systems and networks</b>	
<input type="checkbox"/> Forms of attack: <ul style="list-style-type: none"> <li>Malware</li> <li>Social engineering, e.g. phishing, people as the 'weak point'</li> <li>Brute-force attacks</li> <li>Denial of service attacks</li> <li>Data interception and theft</li> <li>The concept of SQL injection</li> </ul>	<b>Required</b> <ul style="list-style-type: none"> <li>✓ Threats posed to devices/systems</li> <li>✓ Knowledge/principles of each form of attack including:               <ul style="list-style-type: none"> <li>How the attack is used</li> <li>The purpose of the attack</li> </ul> </li> </ul>
<b>1.4.2 Identifying and preventing vulnerabilities</b>	
<input type="checkbox"/> Common prevention methods: <ul style="list-style-type: none"> <li>Penetration testing</li> <li>Anti-malware software</li> <li>Firewalls</li> <li>User access levels</li> <li>Passwords</li> <li>Encryption</li> <li>Physical security</li> </ul>	<b>Required</b> <ul style="list-style-type: none"> <li>✓ Understanding of how to limit the threats posed in 1.4.1</li> <li>✓ Understanding of methods to remove vulnerabilities</li> <li>✓ Knowledge/principles of each prevention method:               <ul style="list-style-type: none"> <li>What each prevention method may limit/prevent</li> <li>How it limits the attack</li> </ul> </li> </ul>

2022

- 5 A software development company wants to protect their computer systems and data from unauthorised access.

- (a) Identify **two** methods of physical security that the company could use to protect their computer systems.

1 .....

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2 .....

.....

[2]

- (b) Identify **and** describe **two** software-based security methods that the company can use to protect their computer systems and data.

Method 1 .....

Description .....

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Method 2 .....

Description .....

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[6]

Sample Paper

- 8 A hospital stores patients' details on its computer network. The hospital is concerned about the security of its patients' details.

(a) Staff already use strong passwords to protect systems. Explain, with reference to system security, **three** other ways that the hospital could protect the network system.

1 .....

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2 .....

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3 .....

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[6]

(b) Identify **three** errors that the hospital staff could make that may endanger the security of the network. Outline a procedure that could be put in place to prevent each error.

Error 1 .....

Procedure 1 .....

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Error 2 .....

Procedure 2 .....

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Error 3 .....

Procedure 3 .....

.....

[6]

2021

(d) The university want to protect their data against threats when connected to the Internet.

- (i) Describe the threat malware can pose to the university's network and give a prevention method that the university can use.

Description .....

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Prevention .....

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[3]

- (ii) Describe the threat a brute force attack can pose to the university's network and give a prevention method that the university can use.

Description .....

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Prevention .....

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[3]

2020

1 Data in computer systems is valuable and at risk of loss, damage or being stolen.

(a) The table has four potential threats to data.

Write one prevention method for each threat in the table. Each prevention method must be different.

Threat	Prevention method
Unauthorised access to computer	
Virus	
Phishing	
Data interception	

[4]

(b) Name **two** other threats to the data in a computer system and give a method of preventing each.

Threat 1 .....

Prevention 1 .....

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Threat 2 .....

Prevention 2 .....

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[4]

(a) Hamish needs his computer to be secure from unauthorised access when connected to a network.

[3]

**1** .....

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**2** .....

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**[4]**

[2]

2018

- (e) The house owner is concerned about potential threats to the network from being connected to the Internet.

- (i) Describe **three** possible threats to the computers connected to the network and give **one** way each threat can be reduced or prevented.

Threat 1 .....  
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Prevention .....

Threat 2 .....  
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.....  
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Prevention .....

Threat 3 .....  
.....  
.....  
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Prevention .....

[9]