

CS SAFETY

CAMBRIDGE INTERNATIONAL IGCSE 0984 (9-1)

Internet Safety Questions from (2016-2022)

March 2022

- 5 A holiday company has a website where customers can create accounts and can book and pay for holidays.

(c) The company is concerned about threats to its web server.

Complete the table by identifying:

- **two** potential threats to its web server
- the impact each threat could have on the company
- software the company can use to help to limit each threat.

Each impact must be different.

Threat	Impact on company	Software
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.....

March 2021

iv

6 Hacking is one type of Internet risk used to obtain personal data that is stored on a computer.

(a) Explain how a firewall can help prevent hacking.

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..... [4]

(b) Identify and describe **two** other types of internet risk that are used to obtain personal data.

Internet risk 1

Description

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Internet risk 2

Description

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..... [6]

May/June 2021 V1

3 A firewall can be used to help keep the data secure that is stored on a computer.

(a) The given paragraph describes how the firewall operates to help keep the data secure.

Complete the paragraph using the most appropriate terms from the given list. **Not** all of the terms on the list need to be used.

- Accept
- Criteria
- Hacking
- Input
- Network
- Outgoing
- Output
- Processor
- Reject
- Software
- Store
- Storage

A firewall can be or hardware based. It monitors traffic between the computer and the The user sets for the traffic. The firewall will or the traffic based on this. It can help prevent and malicious software that could be a threat to the security of the data.

[6]

(b) Identify **three** other methods that could be used to keep the data secure.

Method 1

Method 2

Method 3

[3]

- 4 Two internet risks are phishing and pharming.

Describe what is meant by phishing and pharming.

Phishing

Pharming

May/June 2021 V2

- 4** Three types of Internet security risk are virus, spyware and denial of service (DoS) attack.

- (a)** Six statements are given about Internet security risks.

Tick (✓) to show whether the statement applies to virus, spyware or denial of service. Some statements may apply to more than one Internet security risk.

Statement	Virus (✓)	Spyware (✓)	Denial of service (✓)
captures all data entered using a keyboard			
can be installed onto a web server			
prevents access to a website			
is malicious code on a computer			
is self-replicating			
damages the files on a user's hard drive			

[6]

- (b)** Identify **three** other types of Internet security risks.

- 1
- 2
- 3

[3]

- (c)** Some Internet security risks can maliciously damage data. Data can also be damaged accidentally.

State **three** ways that data could be accidentally damaged.

- 1
- 2
- 3

[3]

May/June 2021 V3

- 4 Spencer finds out that his online music account has been accessed by an unauthorised person.

He believes his personal details for the account were obtained using phishing.

- (a) Explain how the personal details could have been obtained using phishing.

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..... [3]

- (b) Give **two** other Internet security risks that could have been used to obtain the personal details.

1

2

[2]

May/June 2020 V2

10 Uma is concerned about risks that she may encounter when using the Internet.

Two of the risks she is concerned about are phishing and pharming.

(a) Give **one** similarity and **two** differences between phishing and pharming.

Similarity

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Difference 1

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Difference 2

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[3]

(b) Identify **two** other risks that Uma could encounter when using the Internet.

Risk 1

Risk 2

[2]

(c) Uma uses a firewall to secure the data on her computer.

(i) Uma tells her friend that a firewall can only be software-based.

Tick() to show whether Uma is **Correct or Incorrect**.

Correct

Incorrect

[1)

(ii) Describe how the firewall helps to keep Uma's data secure.

..... [4)

May/June 2020 V3

- 7 Edie uses a firewall to help prevent her children from accessing websites that she does not want them to see.

(a) Describe how the firewall helps prevent her children from accessing these websites.

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..... [4]

(b) Edie is concerned that her children may download a virus when accessing websites.

State what is meant by a **virus** and explain what could happen if a virus was downloaded.

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..... [3]

(c) Edie explains to her children how to identify if a website is secure.

(i) Give **two** ways that her children can identify if a website is secure.

1

2

[2]

(ii) Describe how a browser checks that a website is secure.

..... (4)

October/November 2020 V1

5 Luke is creating a website for his t-shirt design business.

(b) Luke is concerned that his web server may be hacked or subjected to a denial of service (DoS) attack.

State **two** security methods that Luke could use to help protect the web server from hacking or a DoS attack.

Method 1

Method 2

[2]

February/March 2019

- 7 Arya regularly uses the Internet as a research tool for her school projects.

Identify **and** describe **three** risks to Arya's computer when she is using the Internet for research.

Risk 1

Description

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Risk 2

Description

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Risk 3

Description

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- 4 (a) Lola is concerned about the risks to her computer when using the Internet.

She wants to use some security methods to help protect her computer from the risks.

Identify a security method she could use for each of the following risks. Each security method must be different.

Describe how each security method will help protect Lola's computer.

- (i) Computer virus

Security method

Description

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[3]

- (ii) Hacking

Security method

Description

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[3]

- (iii) Spyware

Security method

Description

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[3]

(b) Lola is also concerned that the data she stores could be subject to accidental damage or accidental loss.

(i) State **three** ways that the data Lola stores could be accidentally damaged or accidentally lost.

1

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3

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[3]

(ii) Give **two** methods that Lola could use to help keep her data safe from accidental damage or accidental loss.

1

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2

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[2]

6 A law company holds a lot of sensitive data about its clients.

- (a) It currently requires employees to enter a username and a password to log-in to an account. Each password must be 8 letters.

The company wants to increase the security of the log-in system.

Identify **two** improvements the company could use to make the log-in system more secure.

Explain how each improvement increases security.

Improvement 1

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Explanation

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Improvement 2

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Explanation

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[4]

- 5 A music company wants to send a new music file to many radio stations. It will send the music file the day before the release date so that the radio stations can store the file ready for release.

The music company does not want the radio stations to be able to open the music file until 09:00 on the release date.

Identify **two** security measures **and** describe how each measure can be used to make sure the music file cannot be opened until the release date.

Security measure 1

Description

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Security measure 2

Description

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6 Priya creates a website to sell her old comic books and superhero figures.

(e) Priya is concerned about a denial of service attack (DoS) occurring on her webserver.

(i) Explain what is meant by a denial of service attack.

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..... [4]

(ii) Give **one** security device that can be used to help prevent a denial of service attack.

..... [1]

May/June 2019 V3

- 3** A finance company is concerned that its employees are being distracted by using gaming websites at work.

(a) Explain how a firewall could help prevent this distraction.

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..... [4]

(b) The finance company is also worried about the security of the data stored on its servers.

The company has decided to encrypt the data to improve the security.

Describe how the data are encrypted.

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..... [4]

October/November 2019 V1

- 6 Ishan is a member of a software community that develops computer games. He has programmed a new feature for one of the community's existing games.

- (b)** Ishan shares the program with community members over the Internet, using Secure Socket Layer (SSL).

- (i) Explain how Ishan will know he is on a secure website.

..... [1]

- (ii) Describe how an SSL connection is established.

[5]

6 Touch screen technologies can be described as resistive or capacitive.

(c) The website Gerald visits uses https.

Explain what is meant by https.

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..... [3]

10 Data is valuable to a company.

(b) Companies can use a range of security methods to keep their data secure.

Identify **two** security methods that a company can use to keep their data secure **and** explain how each method can keep the data secure.

Security method 1

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Security method 2

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October/November 2019 V3

- 8 A company discovers malware on its network.

Explain **two** ways that the malware could have been introduced to the company's network.

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..... [4]

February/March 2018

2 David has installed anti-virus software on his computer.

(a) State **three** tasks carried out by anti-virus software.

Task 1

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Task 2

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Task 3

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[3]

(b) David is still concerned that his computer might get infected by a computer virus.

State **three** other ways in which David can reduce the risk of his computer getting a computer virus.

1

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2

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3

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[3]

May/June 2018 V1

10 RockICT is a music business that has a website to allow customers to view and buy the products it sells.

(d) The music company is concerned about the security of its website.

The company uses a proxy server as part of its security system.

Describe the role of a proxy server in the security system.

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- 3** Three security issues that could affect users online are **phishing**, **pharming** and **spam**.

Explain what is meant by each security issue.

Phishing

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Pharming

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Spam

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4 A company transmits data to external storage at the end of each day.

(c) Data transferred over a network is encrypted to improve data security.

 The system uses 64-bit symmetric encryption.

(i) Explain how encryption improves data security.

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..... [2]

(ii) Explain **one** method that could be used to increase the level of security provided by the encryption.

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..... [2]

October/November 2018 V1

4 Phishing and pharming are two examples of online security threats to a computer system.

(a) Explain what is meant by phishing and pharming.

Phishing

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Pharming

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[4]

(b) Identify **two** other online security threats to a computer system.

Security threat 1

Security threat 2

[2]

(c) Give **two** security measures that can help to protect a computer system from online security threats.

Security measure 1

Security measure 2

[2]

October/November 2018 V2

4 (a) Identify **three** security issues that can put a computer system at risk.

Security issue 1

Security issue 2

Security issue 3

[3]

(b) Explain how a firewall can help to protect a computer system from security issues.

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.....[4]

October/November 2018 V3

6 Sarah stores data electronically.

Describe **three** methods that she could use to avoid loss of stored data.

Method 1

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Method 2

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Method 3

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February/March 2017

- 4 A simple symmetric encryption system is used to encrypt messages. Each letter of the alphabet is substituted by another letter.

Plain text

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Cypher text

v	p	n	a	q	b	r	u	z	s	c	o	y	k	w	f	x	i	e	m	d	j	t	l	h	g
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

- (a) Convert the following plain text to cypher text.

Plain text: **d a t a s e c u r i t y**

Cypher text:[2]

- (b) A new cypher text is created by shifting each letter of the alphabet **five** places to the right.

Show the new cypher text below.

Plain text

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

New cypher text

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

[2]

- (c) State, giving a reason, which cypher text would be more secure.

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.....[2]

May/June 2017 V2

8 A company has a number of offices around the world.

- (a)** Data is transmitted between the offices over the Internet. In order to keep the data safe the company is using Secure Socket Layer (SSL) protocol and a firewall at each office.

Explain how SSL protocol and a firewall will keep the company's data safe.

SSL protocol

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Firewall

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[4]

- (b)** A company stores personal details of its customers on a computer system behind a firewall.

Explain, with reasons, what else the company should do to keep this data safe.

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.....[6]

October/November 2017 V1

- 8 (a) Data is valuable. It needs to be kept secure and it can easily be damaged.

Give **three** different ways that data can be accidentally damaged.

1

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2

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3

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[3]

- (b) The Secure Socket Layer (SSL) protocol can be used to securely transmit data in online banking.

State **three** other different applications that use SSL.

Application 1

Application 2

Application 3

[3]

(c) Online banking is increasing in popularity.

Online banking can be a risk as it can raise a number of security issues. SSL can be used as a security method to make online banking safer.

Identify and describe **three** other security methods that could be used to make online banking safer.

Security method 1

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Security method 2

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Security method 3

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October/November 2017 V2

10 (a) Describe what is meant by Transport Layer Security (TLS).

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.....[3]

(b) Name **three** different applications of TLS.

1

2

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[3]

11 Complete the paragraphs choosing the correct five terms from the list. Each term can only be used once:

- Ethics
- Freeware
- Free Software
- Hacking
- Malware
- Plagiarism
- Shareware
- Virus

Taking another person's work from the Internet and claiming it as your own is called It is possible to protect your work online with copyright.

One product that people may want to protect is software. does allow a person to share, copy and change software freely, but does not allow a person to do this legally. Software that has a licence allowing free use for a trial period is called The name given to this area of Computer Science is

[5]

May/June 2016 V1

6 Secure socket layer (SSL) is used in the security of information on Internet websites.

(a) State how it is possible for a user to know that a website is secure by looking at the web address.

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.....[1]

(b) Describe **three** of the stages a web browser goes through to detect whether a website is secure.

1
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[3]

10 Six security issues and six descriptions are shown below.

Draw a line to link each security issue to its correct description.

Security Issue

Description

Pharming

illegal access to a computer system without the owner's consent or knowledge

Phishing

software that gathers information by monitoring key presses on a user's keyboard; the data is sent back to the originator of the software

Viruses

malicious code installed on the hard drive of a user's computer or on a web server; this code will re-direct the user to a fake website without the user's knowledge

Hacking

creator of code sends out a legitimate-looking email in the hope of gathering personal and financial information from the recipient; it requires the user to click on the link in the email or attachment

Spyware

a message given to a web browser by a web server; it is stored in a text file; the message is then sent back to the server each time the browser requests a page from the server

Cookies

program or code that replicates itself; designed to amend, delete or copy data or files on a user's computer; often causes the computer to crash or run slowly

(c) Security of data is very important.

Three security issues are viruses, pharming and spyware.

Explain what is meant by each issue.

Viruses:

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Pharming:

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Spyware:

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(d) Describe **three** tasks carried out by a firewall.

1

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3

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[3]

October/November 2016 V1

- 2 Name each of the potential security issues described in the **five** statements below:

Statement	Security issue
The act of gaining unauthorised access to a computer system
Program code that can replicate itself with the intention of deleting or corrupting files stored in a computer
A small file sent by a web server to a web browser; every time the user visits the website, data about user preferences is collected
The act of illegally changing the source code of a program so that it can be exploited for another use
Malicious code installed on a user's hard drive or a web server which redirects the user to a fake website without their knowledge

4 The Henslows Diner is a local restaurant.

- (c) The Henslows Diner stores personal data on a computer. This computer is connected to the Internet to allow the data to be backed up.

There is currently one security method in place to protect the data on the computer from unauthorised access. This is a password.

Give **two** other security methods that could be added to improve the security of the data. Describe how each method will keep the data safe.

Security method 1

Description

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Security method 2

Description

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[4]

- 9 (a) Explain what is meant by a denial of service attack.

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.....[2]

- (b) Name and describe **two other** potential security threats when using the Internet.

Security threat 1

Description

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Security threat 2

Description

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.....[4]