

6. Security, privacy and data integrity

Starter Quiz · 课前小测

A-Level Computer Science

Name: _____ Score: _____

1. Which best describes data "integrity"?

- ☐ the data is accurate and complete (not corrupted)
- ☐ only authorised people can access the data
- ☐ a person controls who sees their personal data
- ☐ the data is encrypted

2. Which measures protect a standalone PC that is never networked? Select **all** that apply.

- ☐ a strong password and a locked screen
- ☐ up-to-date antivirus software
- ☐ a backup to separate media kept off-site
- ☐ audit logs of network log-ins

Tick every correct option.

3. Checking that a month entered is between 1 and 12 is a:

- ☐ range check
- ☐ presence check
- ☐ format check
- ☐ check digit

4. Privacy is about a person controlling who sees their personal data, while security is about stopping unauthorised access.

- ☐ True ☐ False

5. A firewall mainly:

- ☐ filters network traffic by rules, blocking unwanted connections
- ☐ encrypts the hard disk
- ☐ scans files for viruses
- ☐ backs up data off-site

6. An extra digit computed from the others to catch a mistyped number (as on ISBNs and card numbers) is a _____ digit.

7. Why must a school keep its computer **system** secure, not only its data? Select **all** that apply.

- ☐ an intruder could install malware on it
- ☐ a compromised system can be used to attack other systems
- ☐ it could be locked with ransomware
- ☐ a secure system makes the stored data more accurate

Tick every correct option.

8. A code from a phone app is an example of which authentication factor?

- ☐ something you have
- ☐ something you know
- ☐ something you are
- ☐ something you guess

9. Why can validation still let bad data through?

- ☐ data can be the right format but factually wrong (e.g. "Bob" for "Bib")
- ☐ validation always rejects correct data
- ☐ validation only works on numbers
- ☐ validation needs the internet

10. A fingerprint reader authenticates a user by something they _____.

1. **the data is accurate and complete (not corrupted)**

Integrity = accurate and complete. Security = blocking unauthorised access; privacy = control over personal data.

2. **a strong password and a locked screen; up-to-date antivirus software; a backup to separate media kept off-site**

Malware still arrives on USB sticks and downloads, and disks still fail, so password, antivirus and backups apply. Network log-in auditing is a networked-PC measure.

3. **range check**

A range check confirms a value lies within sensible limits.

4. **True**

They overlap but differ: security blocks intruders; privacy is control over personal data; integrity is about accuracy.

5. **filters network traffic by rules, blocking unwanted connections**

A firewall controls which network traffic is allowed in or out, by a set of rules.

6. **check**

A check digit is recomputed from the rest and compared, catching most single-digit and transposition errors.

7. **an intruder could install malware on it; a compromised system can be used to attack other systems; it could be locked with ransomware**

System security is the first line of defence: a compromised machine attacks, steals and can be held to ransom. Accuracy is integrity, a different property.

8. **something you have**

A token/phone code is "something you have". Two-factor combines it with a password ("know") or biometric ("are").

9. **data can be the right format but factually wrong (e.g. "Bob" for "Bib")**

Validation checks the form, not the truth — a correctly formatted but wrong value passes.

10. **are**

Know (password), have (token), are (biometric feature). A biometric cannot be forgotten, lent or guessed.