

7. Ethics and Ownership

Starter Quiz · 课前小测

A-Level Computer Science

Name: _____ Score: _____

1. Why are ethics especially important for computing professionals?

- ☐ their work affects people who often cannot judge it themselves, so trust is essential
- ☐ because software is always free
- ☐ because computers never make mistakes
- ☐ only to win awards

2. Copyright applies automatically to an original work (including code) and controls how it is copied and modified — but a general idea or algorithm needs a patent instead.

- ☐ True ☐ False

3. Machine learning differs from traditional programming because it:

- ☐ learns patterns from data instead of being programmed step by step
- ☐ never makes mistakes
- ☐ needs no data at all
- ☐ is written entirely in assembly

4. The two professional bodies named in the syllabus are the BCS and the _____.

5. Why should a programmer rely on copyright for a program? Select **all** that apply.

- ☐ to be identified as the owner and author
- ☐ so there are legal consequences if someone copies it
- ☐ to stop competitors selling the same work
- ☐ to earn money by licensing it
- ☐ to make the program run faster

Tick every correct option.

6. Which is an everyday application of AI?

- ☐ a recommendation system suggesting videos
- ☐ a paper notebook
- ☐ a mechanical lever
- ☐ a printed dictionary

7. Which are benefits of joining a professional ethical body? Select **all** that apply.

- ☐ a code of conduct to follow, so decisions are not left to personal judgement
- ☐ training, conferences and publications
- ☐ recognised professional status and a network of colleagues
- ☐ exemption from the law when following the code

Tick every correct option.

8. A general idea or algorithm is NOT covered by copyright, but may be protected by a:

- ☐ patent
- ☐ password
- ☐ firewall
- ☐ checksum

9. A benefit of AI is:

- ☐ spotting patterns in huge datasets to support decisions (e.g. fraud detection)
- ☐ guaranteeing every decision is fair
- ☐ removing the need for any data
- ☐ always being fully explainable

10. Training and running large AI models has no significant environmental cost.

- ☐ True ☐ False

A-Level Computer Science

1. **their work affects people who often cannot judge it themselves, so trust is essential**

Software runs critical systems and users can't easily verify it, so professionals are trusted to act honestly and competently.

2. **True**

Copyright protects the specific expression; ideas/inventions are protected (if at all) by patents.

3. **learns patterns from data instead of being programmed step by step**

ML algorithms improve at a task by learning from large amounts of data, rather than following hand-written rules.

4. **IEEE**

The British Computer Society and the Institute of Electrical and Electronics Engineers; both publish a code of conduct that members follow.

5. **to be identified as the owner and author; so there are legal consequences if someone copies it; to stop competitors selling the same work; to earn money by licensing it**

Ownership, legal protection, market protection and income are the four reasons the scheme lists. Copyright has nothing to do with performance.

6. **a recommendation system suggesting videos**

Recommendation systems (and speech/image recognition, translation, self-driving) are common AI applications.

7. **a code of conduct to follow, so decisions are not left to personal judgement; training, conferences and publications; recognised professional status and a network of colleagues**

A body offers guidance, development, status and support. It cannot place its members above the law.

8. **patent**

Copyright protects the specific expression (the code/text); ideas and inventions may be protected by a patent.

9. **spotting patterns in huge datasets to support decisions (e.g. fraud detection)**

AI excels at finding patterns in large data (decision support). Fairness and explainability are concerns, not guarantees.

10. **False**

Large models consume a great deal of electricity and cooling water, and their hardware becomes e-waste. AI also helps cut energy use elsewhere, so both directions belong in an answer.