7. Ethics and Ownership

Starter Quiz ·

A-Level Computer Science Name: _____ Score: _____

1. Why are ethics especially important for computing professionals?

   ☐ because computers never make mistakes

   ☐ because software is always free

   ☐ their work affects people who often cannot judge it themselves, so trust is essential

   ☐ 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:

   ☐ is written entirely in assembly

   ☐ learns patterns from data instead of being programmed step by step

   ☐ never makes mistakes

   ☐ needs no data at all

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 earn money by licensing it

   ☐ to be identified as the owner and author

   ☐ to make the program run faster

   ☐ so there are legal consequences if someone copies it

   ☐ to stop competitors selling the same work

   Tick every correct option.

6. Which is an everyday application of AI?

   ☐ a printed dictionary

   ☐ a paper notebook

   ☐ a recommendation system suggesting videos

   ☐ a mechanical lever

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

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

Tick every correct option.

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

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

9. A benefit of AI is:

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

10. Select **all** the genuine professional principles.

    - ☐ honesty about your competence
    - ☐ avoiding conflicts of interest
    - ☐ taking credit for others' work
    - ☐ protecting client confidentiality

    Tick every correct option.

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Answers ·

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

   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. **training, conferences and publications; a code of conduct to follow, so decisions are not left to personal judgement; 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. **honesty about your competence; avoiding conflicts of interest; protecting client confidentiality**

    Honesty, confidentiality and avoiding conflicts of interest are principles; taking others' credit is unethical.