

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

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.