

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. Which is a core principle of professional ethics?
 - ☐ put the public interest (safety and welfare) first
 - ☐ maximise personal profit above all
 - ☐ hide bugs from users
 - ☐ claim expertise you do not have
5. A general idea or algorithm is NOT covered by copyright, but may be protected by a:
 - ☐ patent
 - ☐ password
 - ☐ firewall
 - ☐ checksum
6. Which is an everyday application of AI?
 - ☐ a recommendation system suggesting videos
 - ☐ a paper notebook
 - ☐ a mechanical lever
 - ☐ a printed dictionary

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

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

Tick every correct option.

8. Select **all** genuine concerns about AI.

- ☐ bias from training data
- ☐ lack of transparency ("black box" models)
- ☐ misuse for deepfakes and misinformation
- ☐ it can never be wrong

Tick every correct option.

9. Open-source software means:

- ☐ the source code is public; users can read, modify and redistribute it
- ☐ it is always written by one person
- ☐ the source code is hidden
- ☐ it can never be sold

10. 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

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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. put the public interest (safety and welfare) first

Codes of ethics put the public interest first, alongside honesty, competence and confidentiality.

5. patent

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

6. a recommendation system suggesting videos

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

7. honesty about your competence; protecting client confidentiality; avoiding conflicts of interest

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

8. bias from training data; lack of transparency ("black box" models); misuse for deepfakes and misinformation

Bias, opacity and misuse are real concerns. AI certainly can be wrong — accountability for that is itself a concern.

9. the source code is public; users can read, modify and redistribute it

Open-source publishes the source so the community can read, modify and redistribute it (under the licence terms).

10. 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.