Intellectual property and licensing

5.2.3 · Issues and impact · revision notes

How software, inventions and brands are protected by law as intellectual property, using copyright, patents, trademarks and licences, including the difference between open-source and proprietary software. On Paper 1, expect 1-mark recall, 2 to 4 mark 'Explain' questions and 6-mark 'Discuss' questions about choosing or releasing software.

Key facts

- **Copyright**: automatic; protects original work (code, images, music, text); protects the expression, not the idea.
- **Trademark**: must be registered; protects a brand's name, logo or slogan; renewable every 10 years.
- **Proprietary**: source code secret, usually paid for, restrictions on copying, changing and number of users.
- **Software piracy**: copying or distributing software without permission; it infringes copyright.
- **Patent**: must be applied for; protects a new invention (product or technical process); lasts up to 20 years.
- **Licence**: legal agreement setting out how software may be used.
- **Open source**: source code available to view, change and share under the licence terms; usually free.
- Buying software = buying a licence to use it; the developer keeps the copyright.

Notes

Intellectual property

- **Intellectual property (IP)** is an original creation of the mind, such as a program, an invention, a design or a brand name.
- The law lets the owner stop others from copying or using it without permission. This lets creators earn money from their work and encourages new ideas.

Copyright, patents and trademarks

- **Copyright** protects original work: source code, text, images, music, video and game graphics. It applies **automatically** as soon as the work is created, so there is nothing to apply for.
- Copyright protects the way the work is expressed (the actual code), not the idea. A competitor can legally write their own, different code that does the same job.
- Copyright in software lasts until 70 years after the author's death. Copying, sharing or selling software without permission (software piracy) infringes copyright.
- A **patent** protects an **invention**: a new, inventive product or technical process, such as a new kind of touch screen. It must be applied for, which is slow and costly, and it lasts up to 20 years.
- In the UK, a computer program on its own usually cannot be patented, so software is mainly protected by copyright.
- A **trademark** protects the name, logo or slogan that identifies a brand. It must be registered, and the registration can be renewed every 10 years.

Licensing

- A **software licence** is a legal agreement that sets out how software may be used. When you 'buy' software you usually buy a licence to use it: the developer keeps the copyright.
- **Proprietary (closed-source)** software: the source code is kept secret and users get only the compiled program. It is usually paid for (a one-off fee or a subscription), and the licence limits copying, changing, reselling and the number of users or devices. The developer provides support and updates.
- **Open-source** software: the source code is published, and anyone can view, change and share it under the terms of the licence. It is usually free and supported by a community of developers.
- Some open-source licences say that anyone who shares a changed version must release its source code under the same licence. Others (permissive licences) allow the code to be used in paid-for products as long as the original copyright notice is kept. Grade 7+ only
- Open source does not mean 'no copyright': the code is still copyrighted, and the licence gives you permission to use it.

How to answer each type of question

Identify / State the method of protection

1 to 2 marks | Grade 3

1. Decide what the item is: original work, an invention, a brand, or permission to use something.
2. Match it: copyright, patent, trademark or licence.
3. In a multiple-choice question, rule out the options that clearly do not fit first.

Example. A start-up company has designed a logo for its new app. It has also invented a hinge that lets a phone screen fold without creasing. State the method of intellectual property protection it should use for:
(a) the logo
(b) the hinge. (2 marks)

Model answer.

(a) Trademark (1)
(b) Patent (1)

Explain a difference (open source and proprietary, copyright and patents)

2 to 4 marks | Grade 5

1. Make one point about the first thing.
2. Make the matching point about the second thing, joined with 'whereas'.
3. For 4 marks, give two different comparisons.

Example. Explain **one** difference between open-source software and proprietary software. (2 marks)

Model answer. The source code of open-source software is published, so anyone can view and change it (1), whereas the source code of proprietary software is kept secret, so users only get the compiled program and cannot change it (1).

Explain a benefit and a drawback for a user

4 marks | Grade 6

1. Give the benefit and explain why it matters to this user.
2. Give the drawback and explain its effect on this user.
3. Use details from the context, such as a small budget or many computers.

Example. A small charity is thinking about using an open-source accounts program. Explain **one** benefit and **one** drawback of this for the charity. (4 marks)

Model answer. Benefit: there is usually no licence fee (1), so the charity can install it on all its computers and spend its limited money on its work (1). Drawback: there may be no official support (1), so if something goes wrong the charity must rely on online forums or pay someone else for help (1).

Explain the legal position in a scenario

2 to 3 marks | Grade 7

1. Identify which protection applies (often copyright).
2. Explain what is not allowed without the owner's permission.
3. Say how the person could act legally, e.g. get permission or a licence.

Example. A student finds a photograph on a website and uses it as the background in a game that they sell online. Explain why this could be illegal, and how the student could use a photograph legally. (3 marks)

Model answer. The photograph is automatically protected by copyright, even though anyone can view it online (1). Using it in a product without the owner's permission infringes that copyright (1). The student should ask the owner for permission or buy a licence, or use an image whose licence allows it to be used in products that are sold (1).

6-mark 'Discuss' a licensing choice

6 marks | Grade 8

1. Consider the factors: cost or income, control, support, customisation, how widely it will be used.
2. Give points for both options, applied to the person or organisation in the question.
3. Develop each point with its consequence.
4. Finish with a justified recommendation.

Example. A developer has written a photo-editing app. Discuss whether she should release it as open-source software or as proprietary software. (6 marks)

Model answer. Marked in levels: the top level needs balanced, developed points about the developer's situation, and a conclusion. A strong answer might say: As proprietary software, she could charge a fee or a subscription and earn money from her work. Keeping the source code secret would stop competitors copying her methods, and she would keep control of how the app develops. However, she would have to provide all the support and updates herself. As open-source software, other developers could find and fix bugs and add features for free, and more people might try the app because it costs nothing. But she would earn little directly (perhaps from donations or paid support), and others could reuse her code within the terms of the licence. Either way, she keeps the copyright. Overall, if she needs an income from the app, a proprietary licence is the better choice; if she mainly wants it to be widely used and improved, open source suits her better.

Don’t lose marks

- Saying copyright has to be applied for, or that a patent is automatic.
- Saying copyright protects an idea: it protects the code or work itself.
- Saying open-source software has no copyright or no rules: the licence sets conditions.
- Giving 'free' as the only difference: the key feature of open source is that the source code is available.
- Saying a trademark protects the software itself: it protects the brand's name or logo.

More tips

Memory tricks

- Which protection? Wrote or made it → copyright; invented it → patent; branded it → trademark; allowed to use it → licence.
- Copyright is automatic; a patent must be applied for (and paid for).
- Open source = open code: you can open it up and look inside.
- 'Whereas' is the key word for any difference question.

Exam technique

- For comparison questions, write both sides and join them with 'whereas'.
- Think about who is choosing: a charity, a school and a software company care about different things.
- In 'Discuss' answers, finish with a recommendation that follows from your points.

What each grade needs

What you need to be able to do, from the first marks up to the top grade.

Grade 3 — **State what copyright protects**
Original work such as source code, images, music and text; the protection applies automatically.

Grade 3 — **Match a protection method to an item**
Code → copyright, invention → patent, logo or name → trademark, permission to use software → licence.

Grade 4 — **Describe open-source and proprietary software**
Open-source code can be viewed, changed and shared; proprietary code is kept secret and its use is restricted.

Grade 5 — **Explain differences between copyright and patents**
Copyright is automatic and protects original work; a patent must be applied for and protects an invention.

Grade 6 — **Explain pros and cons of open source**
Usually free, customisable and community-supported, but may have no official support or guaranteed updates.

Grade 7 — **Explain what a licence allows in context**
Work out whether the code may be changed, sold or shared, and whether changes must be released too.

Grade 8 — **Discuss open-source versus proprietary for a user**
Weigh cost, income, support, customisation and control for the person or organisation, then recommend one.

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