



JetLearn's GCSE (9–1) Computer Science - Ethical, legal, environmental impacts

Time allowed: 1 hour 10 minutes

INSTRUCTIONS

- Use black ink. You can use an HB pencil, but only for graphs and diagrams.
- Write your answer to each question in the space provided. If you need extra space use the lined pages at the end of this booklet. The question numbers must be clearly shown.
- Answer all the questions.

INFORMATION

- The total marks for this paper is 60.
- The marks for each question are shown in brackets [].
- Quality of extended response will be assessed in questions marked with an asterisk (*).
- This document has 14 pages.

ADVICE

- Read each question carefully before you start your answer.



1. Daniel is a medical researcher trying to find a cure for a disease. He has a team of hundreds of people carrying out medical testing.

Recent developments in Artificial Intelligence (AI) mean that a computer program could do the work of dozens of researchers in a much shorter time. Daniel decides to increase his use of Artificial Intelligence.

Discuss the issues surrounding this decision. Consider the following in your answer:

- Ethical issues
- Legal issues
- Cultural issues

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2. People often want to buy the most up-to-date smartphones, even though the smartphone they own still works. Discuss the impact of people wanting to upgrade to the latest smartphone.

In your answer, you might consider the impact on:

- Smartphone users
- Cultural issues
- Ethical issues
- Environmental issues.

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3. The use of digital technology in medicine is constantly evolving.

Discuss the impact of digital technology on medicine including:

- Diagnosing patients
- Treating patients
- Storage of records.

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4. Lauren is a Computing teacher. She is building a website for her Computing class where they can share ideas, send each other programs and discuss computing concepts.

The students will have individual accounts that they can log into.

Discuss the ethical and legal issues Lauren will have to consider when setting up the website. The quality of your written communication will be assessed in your answer.

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5. A small island has 100 people living on it. The island has just been connected to the Internet, after previously having no Internet or mobile phone signal.

Discuss the impact on the island's inhabitants and businesses of getting access to the Internet. In your answer you might consider the impact on:

- Inhabitants
- Ethical issues
- Privacy issues

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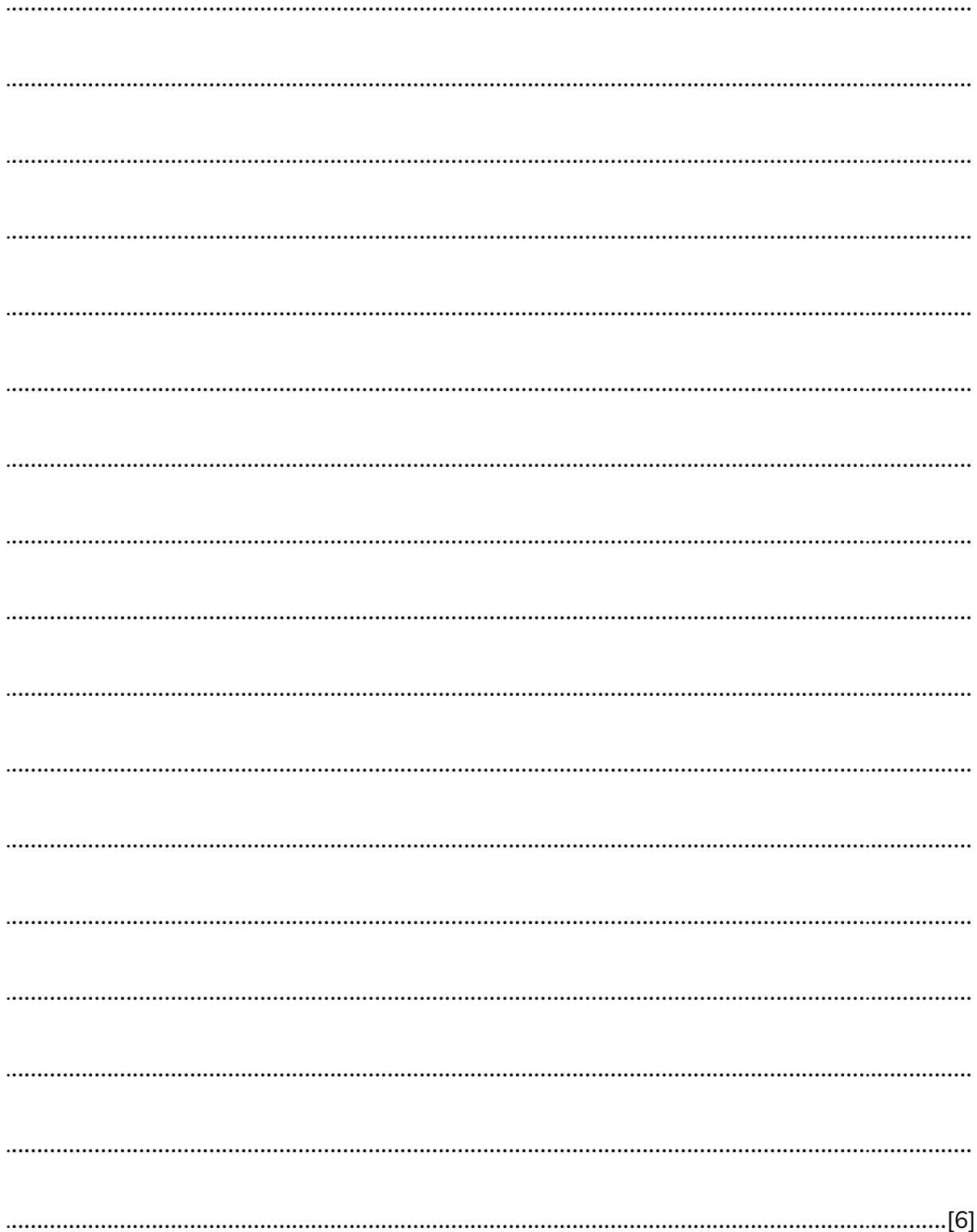
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Describe the environmental impact of Fiona's decision.

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7. A law company currently uses a Local Area Network (LAN) linked to a Wide Area Network (WAN). They want to upgrade their system to utilise cloud storage.

Fig. 1 lists some actions that may take place in the law company's office.

Tick (✓) one box in each row to show which legislation applies to each action.

| Action | Data Protection Act 2018 | Computer Misuse Act 1990 | Copyright Designs and Patents Act 1988 |
|---|--------------------------|--------------------------|--|
| Using a picture for the law company's new logo without the original creator's permission. | | | |
| A secretary accessing a lawyer's personal email account without permission. | | | |



| | | | |
|---|--|--|--|
| Making a copy of the latest Hollywood blockbuster movie and sharing it with a client. | | | |
| Storing Customer Data Securely. | | | |
| A lawyer installing a keylogger on the secretary's computer. | | | |
| Selling client's personal legal data to a marketing company without their permission. | | | |

Fig. 1

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8. William is creating a film for a school project using a digital video camera.

How does the Copyright Designs and Patents Act 1988 protect his work?

Discuss the main aspects that William should keep in mind to ensure the legal use, distribution, and reproduction of his film.

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9. Apu has a handheld e-book reader that allows him to store and read electronic books. The manufacturer of the e-book reader provides proprietary software, which Apu can use to transfer the e-book from the CD-ROM to the e-book reader.

(a) Describe what is meant by proprietary software.

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(b) Explain one advantage to the manufacturer of providing proprietary software instead of open source software.

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10. Amin buys a new computer with an operating system and some utilities.

Some of the software in Amin's computer is open source.

Describe what is meant by open source software.

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11. Eve's computer has system software including an Operating System and Utility Software.

Eve uses a computer to write a computer game. She wants people to be able to download her program online. Eve is choosing between an open source and proprietary licence.

(a) Give two benefits to the customers of Eve choosing an open source licence.

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(b) Give two benefits to Eve of choosing a proprietary licence.

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12. Layla is an artist. She draws images by hand. The image is then scanned and stored on a computer.

Layla wants to protect her images so they cannot be copied by other people.

Identify which legislation can help protect Layla's images.

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ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).

This image shows a full page of white paper with horizontal dashed lines, typical of primary-ruled notebook paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

END OF QUESTION PAPER