

6 A weather station uses automated systems to collect and analyse data about the weather.

The automated system uses sensors.

(a) Give **one** other component that would be part of the automated system.

..... [1]

(b) One sensor that is part of the automated system is a temperature sensor.

Give **one** other sensor that could be part of the automated system.

..... [1]

(c) An alert is sent to an employee in the weather office if a temperature above 40°C is detected.

(i) Explain how a temperature above 40°C is detected for the alert.

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(ii) The data for the alert is sent using serial simplex data transmission.

Explain how the data is sent using serial simplex data transmission.

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(d) Give **two** advantages to the weather station employees of using an automated weather system.

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(e) Give **one** disadvantage to the weather station employees of using an automated weather system.

..... [1]

(f) The automated weather system is upgraded and given machine learning capabilities.

(i) Machine learning is part of a branch of computer science.

Identify the name of this branch of computer science.

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(ii) Explain how the machine learning capabilities can be used to predict future weather.

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..... [3]