



Artificial Intelligence **Answers**

1. Name the machine developed during the Second World War to crack the Enigma code.

the Bombe

2. State the type of artificial intelligence used to develop driverless cars.

limited memory

3. Describe what is meant by the term 'artificial intelligence.'

The ability of machines to solve complex problems in the same way that humans can.

4. Give **two** reasons why research into the use of artificial intelligence increased after the 1950s.

Responses could include:

- **Until the 1950s, computers could carry out commands but not store them (they had limited memory).**
- **The term artificial intelligence was not used until 1950 (by John McCarthy).**
- **The first major conference about artificial intelligence happened in 1956. This brought about the start of major research into this field.**
- **Computers became cheaper to run after this time, meaning their use was more widespread. Before this, they were only used by large organisations.**

5. Explain why Deep Blue might not be able to beat Garry Kasparov in a chess rematch.

Deep Blue is an example of a reactive machine. This means it could not store or learn from each of its matches with Kasparov. Kasparov could eventually beat Deep Blue by learning from previous matches.



6. Evaluate the potential development of self-aware machines in the future.

Student responses will vary but should include a benefit and a problem relating to the development of self-aware machines.

Benefits could include:

- Self-aware machines could make decisions for themselves and learn from their experiences.
- This means they could solve more problems for humans without being specifically programmed to do so.
- An example of where this could be useful is to deliver intuitive and personalised care for patients in hospitals or residential settings.

Problems could include:

- Self-aware machines understand their own needs and reason for existence.
- The line between human and machine would be blurred, and some people might think that self-aware machines have rights.
- There would be the potential for machines to make the wrong decision. This could cause harm to humans.
- Self-aware machines might replace humans in the workplace leading to increased unemployment.

7. Suggest an example of machine learning not already mentioned in the text.

Any example of a machine learning from user data should be credited.

Answers could include:

- adverts on social media, tailored to your shopping or scrolling preferences
- vouchers being sent to you as a result of using a loyalty card in a supermarket
- email spam filters
- facial recognition software