Introduction to AI and Everyday Examples

Standard difficulty · 20 questions · 40 marks · Time: 36 minutes

Name: _____ Date: _____ Score: ____ / 40

Show your working for Sections B and C. Answers are on the last page — try every question first!

Section A — Choose the correct answer — 8 × 1 = 8 marks

1. Artificial Intelligence (AI) is the ability of machines to:
   (a) only add numbers
   (b) feel emotions like people
   (c) run without electricity
   (d) do tasks that usually need human thinking, like recognising or deciding

2. Which of these uses AI (it learns from data to recognise or predict)?
   (a) a voice assistant that answers spoken questions
   (b) a ceiling fan with a fixed timer
   (c) a toaster that pops up after a set time
   (d) a water pump that starts when the tank is empty

3. Which of these is automation only (it follows a fixed rule and does not learn)?
   (a) a homework helper that recognises handwritten digits
   (b) a maps app that predicts traffic and suggests a faster route
   (c) a school bell that rings at set times
   (d) a phone camera that finds the faces in a photo

4. A model learns from photos labelled "cat" or "dog". This is:
   (a) supervised learning **(b)** reinforcement learning
   (c) unsupervised learning **(d)** automation

5. Which task do machines usually do better than people?
   (a) understanding how a friend feels
   (b) making up a story from imagination
   (c) checking thousands of photos without getting tired
   (d) learning a new game from one example

6. What does the AI in a junk-mail filter mainly do?
   (a) changes text from one language to another
   (b) recognises faces and scenes
   (c) sorts unwanted emails away
   (d) turns speech into text and answers questions

7. A model is tested on 25 pictures of fruit it has never seen. It labels 20 of them correctly. What is its accuracy?
   (a) 75% **(b)** 85% **(c)** 20% **(d)** 80%

8. A robot learns a game by trial and error. It gets +3 points for a good move and loses 2 points for a bad move. In 26 moves, 23 were good. What is its score?

(a) 63 **(b)** 75 **(c)** 69 **(d)** 32

Section B — Short answer 8 × 2 = 16 marks

9. What is Artificial Intelligence?

10. Write AI or automation for each: (a) a water pump that starts when the tank is empty (b) a homework helper that recognises handwritten digits

11. Which type of learning is each (supervised, unsupervised or reinforcement)? (a) A robot learns to walk by getting points for steps that do not fall. (b) A model learns from photos labelled "cat" or "dog".

12. A model is tested on 100 handwritten digits it has never seen. It labels 64 of them correctly. How many does it get wrong?

13. A model is tested on 10 photos of leaves it has never seen. It labels 9 of them correctly. What is its accuracy?

14. A robot learns a game by trial and error. It gets +8 points for a good move and loses 4 points for a bad move. In 14 moves, 11 were good. What is its score?

15. Who usually does each better, people or machines? (a) remembering every item in a huge list (b) telling a joke that suits the moment

16. What does the AI do in each: (a) a weather app (b) a translation tool

Section C — Word problems — 4 × 4 = 16 marks

17. Explain the difference between automation and AI with two examples of each.

18. (a) A robot learns a game by trial and error. It gets +9 points for a good move and loses 5 points for a bad move. In 27 moves, 21 were good. What is its score?
(b) A model is tested on 25 pictures of fruit it has never seen. It labels 21 of them correctly. What is its accuracy?

19. Match each with its type of learning: (a) A program finds groups of similar news stories by itself. (b) A program learns to park a toy car by being rewarded for getting closer. (c) A model learns from handwritten digits labelled 0 to 9. Choose from: supervised learning; reinforcement learning; unsupervised learning.

20. Match each with its job: (a) a weather app (b) a phone camera (c) a junk-mail filter. Choose from: predicts rain from patterns in past data; sorts unwanted emails away; recognises faces and scenes.

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Answer key

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Q	Answer	Working
1	**(d) do tasks that usually need human thinking, like recognising or deciding**	—
2	**(a) a voice assistant that answers spoken questions**	—
3	**(c) a school bell that rings at set times**	—
4	**(a) supervised learning**	—
5	**(c) checking thousands of photos without getting tired**	—
6	**(c) sorts unwanted emails away**	—
7	**(d) 80%**	20 ÷ 25 × 100
8	**(a) 63**	3 × 23 − 2 × 3
9	**The ability of a machine or computer program to do tasks that normally need human intelligence, such as recognising pictures, understanding speech or making predictions.**	—
10	**(a) automation (b) AI**	—
11	**(a) reinforcement learning (b) supervised learning**	—
12	**36**	100 − 64
13	**90%**	9 ÷ 10 × 100
14	**76**	8 × 11 − 4 × 3
15	**(a) machines (b) people**	—
16	**(a) predicts rain from patterns in past data (b) changes text from one language to another**	—
17	**Automation follows fixed rules: a street light that switches on at 6 p.m., an automatic door. AI learns from data: a maps app that predicts traffic, a camera that recognises faces. AI can handle new cases; automation cannot change its rule.**	—
18	**(a) 159; (b) 84%**	(a) 9 × 21 − 5 × 6; (b) 21 ÷ 25 × 100
19	**(a) unsupervised learning (b) reinforcement learning (c) supervised learning**	—

Q	Answer	Working
20	**(a) predicts rain from patterns in past data (b) recognises faces and scenes (c) sorts unwanted emails away**	—