Ethics and Responsible AI

Standard difficulty · 20 questions · 40 marks · Time: 39 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. AI ethics focuses on:
   (a) making machines cheaper
   (b) deleting apps
   (c) making machines faster
   (d) making sure AI is created and used responsibly

2. Which word means “values and principles that guide how technology should be made and used”?
   (a) ethics **(b)** transparency **(c)** consent **(d)** fairness

3. Which of these should never be shared with anyone online?
   (a) the title of a book you enjoyed **(b)** your favourite colour
   (c) the name of your favourite sport **(d)** your school login details

4. A surprising message arrives in a group chat. What is a good thing to do before forwarding it?
   (a) share it because many people already have
   (b) share it quickly before checking
   (c) check the source of the message
   (d) forward it to everyone at once

5. Which permission does a weather app for your current town actually need to work?
   (a) none of these **(b)** contacts **(c)** microphone **(d)** location

6. An app asks before saving your location history. Which idea does this show most clearly?
   (a) misinformation **(b)** fairness **(c)** privacy **(d)** bias

7. One person sends a false message to 2 people. Every hour, each person who received it in the last hour forwards it to 2 new people. How many new people receive it in hour 4 (the first sending is hour 1)?
   (a) 16 **(b)** 25 **(c)** 8 **(d)** 18

8. Three apps ask for these permissions:
   A map showing your route asks for: location
   A notes app asks for: contacts, photos
   A voice-search app asks for: microphone, photos
   How many of the requested permissions are not needed for the app to work?
   (a) 5 **(b)** 2 **(c)** 3 **(d)** 4

Section B — Short answer — 8 × 2 = 16 marks

9. Why is privacy important in the digital world?

10. Write one word for each: (a) treating all people equally (b) values and principles that guide how technology should be made and used

11. A false message is sent to 3 people, and each hour every new receiver forwards it to 3 more. How many people have received it in all by the end of hour 5?

12. Three apps ask for these permissions:
A voice recorder asks for: contacts, photos, microphone
A map showing your route asks for: photos, contacts, location
A voice-search app asks for: location, microphone
How many of the requested permissions are not needed?

13. Which idea does each situation show? (a) A student checks why a game wants to see the phone's contacts before tapping Allow. (b) A sports app recommends games by a child's interests, not by whether they are a boy or a girl.

14. A class checked 20 forwarded messages against trusted sources and found 10 were false. What percentage were false?

15. Which idea does each situation show: privacy, accountability, bias, misinformation, transparency or fairness? (a) A realistic but fake photo spreads quickly online. (b) A service explains in plain words what data it uses to make suggestions.

16. Explain each term in your own words and give an example: (a) consent (b) bias

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

17. Explain four principles of responsible AI with an example of each.

18. A fake notice about an exam being cancelled is sent to 2 people. Each hour, everyone who got it in the last hour forwards it to 2 new people. (a) How many new people get it in hour 5? (b) How many have got it by the end of hour 5? (c) Give two checks a student should make before forwarding such a notice.

19. Four apps ask for these permissions:
A voice-search app asks for: camera, microphone
A stopwatch asks for: camera
An app for saving phone numbers asks for: contacts, location, microphone
A notes app asks for: microphone
(a) How many permissions are requested in all? (b) How many are not needed? (c) Why should you think before tapping Allow?

20. A class checks 50 messages from a group chat against trusted sources and finds 10 are false. (a) What percentage are false? (b) If each false message had been forwarded to 10 people, how many people would have received false information? (c) Name one habit that stops false messages spreading.

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Answer key

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Q	Answer	Working
1	**(d) making sure AI is created and used responsibly**	—
2	**(a) ethics**	—
3	**(d) your school login details**	—
4	**(c) check the source of the message**	—
5	**(d) location**	it needs only location
6	**(c) privacy**	—
7	**(a) 16**	2 → 4 → 8 → 16
8	**(c) 3**	a map showing your route needs location; a notes app needs none; a voice-search app needs microphone
9	**Misused personal data can lead to identity theft, fraud or harm to reputation, so you should control who sees it.**	—
10	**(a) fairness; (b) ethics**	—
11	**363**	3 + 9 + 27 + 81 + 243
12	**5**	a voice recorder needs microphone; a map showing your route needs location; a voice-search app needs microphone
13	**(a) privacy (b) fairness**	—
14	**50%**	10 ÷ 20 × 100
15	**(a) misinformation; (b) transparency**	—
16	**(a) knowingly agreeing to share your data (b) unfair patterns an AI system learns from unbalanced data**	—
17	**Fairness (treating all groups equally in recommendations), privacy (asking before collecting location), transparency (explaining how suggestions are made), accountability (people fixing errors and taking responsibility).**	—
18	**(a) 32; (b) 62; (c) e.g. check the school's official website or notice board, and ask a teacher before sharing**	2^5; 2 + 4 + 8 + 16 + 32
19	**(a) 7; (b) 5; (c) e.g. an app that collects data it does not need could misuse or share it, so allow only what it needs**	a voice-search app needs microphone; a stopwatch needs none; an app for saving phone numbers needs contacts; a notes app needs none

Q	Answer	Working
20	**(a) 20%; (b) 100; (c) e.g. check the source before forwarding**	10 ÷ 50 × 100; 10 × 10