

5.3 Computing Bias

Name: _____ Class: _____ Date: _____

Total: 8 marks

KEY WORDS bias 偏见 • training data 训练数据 • computing bias 计算偏见

Objective

Build the skills to answer exam questions on **computing bias**.

You must be able to:

- explain how **computing bias** 计算偏见 can be built into a program, sometimes unknowingly
- describe how biased **training data** 训练数据 leads to unfair results
- identify how bias can **harm** particular groups
- propose ways developers can **reduce** bias

1 Worked examples

Study these first. Each one shows the method for a question type used later.

■ Computing bias

Bias can be **built into** a program, sometimes **without the developers realising** it.

■ Biased training data

If the **training data** used to build a program is biased, the program can produce **unfair** results that **harm** particular groups.

■ Reducing bias

Testing with **diverse** users and data helps reveal hidden bias, and developers can act on it during design and development to **reduce** it.

2 Practice

2.1 Define computing bias.

[1]

2.2 State how biased training data causes unfair results. [1]

2.3 State one way developers can reduce bias. [1]

3 Exam-style questions

3.1 Computing bias can be built into a program [1]

- | | |
|---|---|
| A | B |
| C | D |
- A** always on purpose
 - B** sometimes without the developers' awareness
 - C** only by users
 - D** never

3.2 Testing with diverse users helps to [1]

- | | |
|---|---|
| A | B |
| C | D |
- A** add bias
 - B** reveal hidden bias
 - C** slow the program
 - D** compress data

3.3 A facial-recognition app works poorly for some groups of people.

(a) State a likely cause. [1]

(b) State one harm this could do. [1]

(c) State one way to reduce the bias. [1]