

2.2 Thinking, Problem-Solving, Judgments, and Decision-Making

Name: _____ Class: _____ Date: _____

Total: 11 marks

KEY WORDS heuristic 启发法 • algorithm 算法 • confirmation bias 确认偏差
• functional fixedness 功能固着 • availability 可得性

Objective

Build the skills to answer exam questions on **problem-solving** 问题解决 and **judgment** 判断.

You must be able to:

- contrast an **algorithm** 算法 with a **heuristic** 启发法
- explain the **availability** 可得性 and **representativeness** 代表性 heuristics
- describe **confirmation bias** 确认偏差 and **framing** 框架效应
- state what **functional fixedness** 功能固着 and a **mental set** 心向 block

1 Worked examples

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

■ Algorithm against heuristic

An **algorithm** is a step-by-step procedure guaranteed to find the answer if one exists, but often slow. A **heuristic** is a shortcut that is fast and usually right, at the cost of predictable errors.

■ Two heuristics

Availability: judging how likely something is by how easily an example comes to mind — so vivid, recent or reported events are overestimated. **Representativeness**: judging by resemblance to a typical case, which ignores how common the category actually is.

■ Two biases

Confirmation bias is searching for and weighting evidence that supports what you already believe. **Framing** is the finding that the same information described differently — “90% survive” against “10% die” — produces different decisions.

■ Two blocks

Functional fixedness is being unable to see an object used in a new way. A **mental set** is persisting with a strategy that worked before but does not fit the present problem.

2 Practice

2.1 State one advantage of an algorithm and one of a heuristic. [2]

2.2 Explain the availability heuristic and give one consequence. [2]

2.3 A patient is told a treatment has “a 90% survival rate” rather than “a 10% death rate.”

(a) Name the effect being used. [1]

(b) State what it shows about how decisions are made. [1]

3 Exam-style questions

3.1 Overestimating the risk of plane crashes after seeing news coverage illustrates [1]

- | | |
|---|---|
| A | B |
| C | D |
- A the representativeness heuristic
B the availability heuristic
C functional fixedness
D a mental set

3.2 Failing to use a coin as a screwdriver is an example of [1]

- | | |
|---|---|
| A | B |
| C | D |
- A confirmation bias
B framing
C functional fixedness
D an algorithm

3.3 A researcher only cites studies agreeing with her hypothesis.

(a) Name the bias. [1]

(b) Explain why it is hard to detect in oneself. [2]
