

Exercise walk-through

Operant Conditioning ■ 3.8

eXercise

You must be able to

- distinguish **positive** and **negative reinforcement** 负强化 from **punishment** 惩罚
- match a **schedule of reinforcement** 强化程式 to its response pattern
- describe **shaping** 塑造 and successive approximation
- state the drawbacks of punishment as a method

Method — The four consequences

Positive reinforcement adds something desirable; **negative reinforcement** removes something aversive. Both **increase** behaviour. **Positive punishment** adds something aversive; **negative punishment** removes something desirable. Both **decrease** behaviour. Negative reinforcement is not punishment.

Method — Schedules

Fixed-ratio: after a set number of responses — high, bursty rates. **Variable-ratio:** after an unpredictable number — highest and steadiest rates, most resistant to extinction. **Fixed-interval:** first response after a set time — a scallop, slow then fast. **Variable-interval:** unpredictable time — steady, moderate.

Method — Shaping

Reinforcing successive approximations to a target behaviour, so that a complex action can be built where it never occurred spontaneously.

Method — Why punishment is limited

It tells the learner what not to do without teaching what to do; it can produce fear and avoidance of the punisher; and its effect often depends on the punisher being present.

Practice 2.1 ■ 2 marks

State the difference between negative reinforcement and punishment.

Solution 2.1

Method: The four consequences

Worked steps

negative reinforcement removes something aversive and **increases** behaviour **B1**;
punishment **decreases** behaviour **B1**.

Practice 2.2 ■ 2 marks

State which schedule produces the most persistent responding and why.

Solution 2.2

Worked steps

variable-ratio **B1**; reinforcement is unpredictable, so responding persists during unreinforced periods and resists extinction **B1**.

Practice 2.3 ■ 1 mark

A trainer rewards a dog for each step closer to a target behaviour.

- (a) Name the technique.
- (b) State why it is needed for complex behaviours.

Solution 2.3

Method: Shaping

Worked steps

(a) shaping by successive approximation **B1**. (b) the complete behaviour never occurs spontaneously, so there is nothing to reinforce until it is built up **B1**.

Exam-style 3.1 ■ 1 mark

Taking painkillers to remove a headache is maintained by

A positive reinforcement

B negative reinforcement

C positive punishment

D negative punishment

Solution 3.1

A positive reinforcement

B negative reinforcement 

C positive punishment

D negative punishment

Worked steps

B. removing an aversive state increases the behaviour that removed it.

Exam-style 3.2 ■ 1 mark

A pattern of slow responding that speeds up as a deadline approaches indicates a

- A** fixed-ratio schedule
- B** variable-ratio schedule
- C** fixed-interval schedule
- D** variable-interval schedule

Solution 3.2

- A fixed-ratio schedule
- B variable-ratio schedule
- C fixed-interval schedule
- D variable-interval schedule



Worked steps

- C. the scallop pattern is characteristic of fixed-interval reinforcement.

Exam-style 3.3 ■ 1 mark

A teacher relies on detentions to reduce disruption.

- (a) State one limitation of this approach.
- (b) Suggest one alternative and justify it.

Solution 3.3

Worked steps

(a) it suppresses behaviour without teaching what to do instead **B1**. (b) reinforce the desired behaviour, e.g. praise for on-task work **B1**, because reinforcement builds the behaviour you want rather than only removing one you do not **B1**.