

3.8 Operant Conditioning

Name: _____ Class: _____ Date: _____

Total: 11 marks

KEY WORDS reinforcement 强化 • positive 正 • punishment 惩罚 • negative 负 • negative reinforcement 负强化

Objective

Build the skills to answer exam questions on **operant conditioning** 操作性条件作用.

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

1 Worked examples

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

■ 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.

■ 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.

■ Shaping

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

■ 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.

2 Practice

2.1 State the difference between negative reinforcement and punishment. [2]

2.2 State which schedule produces the most persistent responding and why. [2]

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

(a) Name the technique. [1]

(b) State why it is needed for complex behaviours. [1]

3 Exam-style questions

3.1 Taking painkillers to remove a headache is maintained by [1]

- **A** positive reinforcement
- **B** negative reinforcement
- **C** positive punishment
- **D** negative punishment

3.2 A pattern of slow responding that speeds up as a deadline approaches indicates a [1]

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

3.3 A teacher relies on detentions to reduce disruption.

(a) State one limitation of this approach. [1]

(b) Suggest one alternative and justify it.

[2]

Solutions

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

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

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

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

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

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