

3.8 Operant Conditioning

Name: _____ Class: _____ Date: _____ **Total: 18 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]

3.4 Applied research task. A shop wants staff to greet every customer. Manager **A** gives a £5 bonus for each shift in which a supervisor observes a greeting — but supervisors observe at unpredictable times. Manager **B** gives a £5 bonus after every twenty greetings. Manager **C** removes an unpopular Saturday shift from staff who greet consistently.

- (a) Name the reinforcement schedule used by Manager A and by Manager B, and state which produces the steadier rate of responding. [3]

- (b) Explain why Manager C's method is **negative reinforcement** and not punishment. [2]

- (c) Explain how shaping could be used to train a member of staff who currently says nothing to customers. [1]

- (d) After the scheme ends, greetings continue for several weeks before stopping. Name this process and the one that would occur if greetings briefly reappeared later. [1]

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.

3.4 (a) Manager A uses a **variable-interval** schedule — reinforcement after an unpredictable period (1). Manager B uses a **fixed-ratio** schedule — after a set number of responses (1). The **variable** schedule produces the steadier rate, because the next observation could come at any moment (1).

(b) Negative reinforcement removes an **unpleasant** stimulus in order to **increase** a behaviour (1); here the disliked shift is taken away and greeting becomes more frequent, whereas punishment would add something unpleasant, or remove something pleasant, in order to **decrease** a behaviour (1).

(c) Reinforce **successive approximations** — first eye contact, then a nod, then a word, then a full greeting — reinforcing each closer approximation and no longer reinforcing the earlier one (1).

(d) **Extinction** (1); a brief later return of the behaviour would be **spontaneous recovery**.