A5 · How the nervous system is organized · Practice key

This is the worked key. Every practice question is worked step by step.

Worked examples

Read these first. There is one for each kind of question in this lesson.

Example 1 · Predict an autonomic effect

You are startled by a loud bang. What happens to your heart rate?

1. Step 1: the body is under stress.
2. Step 2: the sympathetic nervous system acts.
3. Step 3: a faster heart helps the body act.
4. Step 4: the heart rate goes up.

Answer: The heart rate goes up.

Example 2 · Place a part in the right division

A motor neuron runs from the spinal cord to a leg muscle. Which division is it in?

1. It is outside the brain and spinal cord, so it is in the peripheral nervous system.
2. A leg muscle is a skeletal muscle, under voluntary control.

Answer: The sensory-somatic nervous system.

Practice

Questions 1 to 4 are easy. Questions 5 to 8 are medium. Questions 9 and 10 are harder.

EASY

1. Name the two parts of the central nervous system.

1. The brain.
2. The spinal cord.

EASY

2. State what the letters PNS stand for.

1. P is for peripheral.
2. PNS is the peripheral nervous system.

EASY

3. Name the part of the peripheral nervous system that is involuntary.

1. It controls the heart, glands and organs.
2. It is the autonomic nervous system.

EASY

4. Name the two parts of the autonomic nervous system.

1. The sympathetic nervous system.
2. The parasympathetic nervous system.

MEDIUM

5. Explain the difference between voluntary and involuntary control. Give one example of each.

1. A voluntary action is one you choose, such as lifting a pencil.
2. An involuntary action is one you do not choose, such as your heart beating.

MEDIUM

6. State what the sympathetic nervous system does to the liver and to the pupils.

1. The liver releases glucose.
2. The pupils dilate.

MEDIUM

7. Name the neurotransmitter the parasympathetic nervous system releases at an organ.

1. The sympathetic nervous system releases norepinephrine.
2. The parasympathetic nervous system releases acetylcholine.

MEDIUM

8. You are falling asleep after a calm evening. Use the four steps to predict what happens to your pupils.

1. The body is at rest.
2. The parasympathetic nervous system acts.
3. More light is not needed.
4. The pupils constrict.

HARDER

9. A reflex uses sensory-somatic nerves, but it is not voluntary. Explain how both statements can be true.

1. The sensory and motor neurons of a reflex arc run in sensory-somatic nerves.
2. But the response happens without a choice by the brain.

HARDER

10. A drug copies norepinephrine at the organs. Predict its effect on heart rate and on peristalsis. Explain.

1. Norepinephrine is released by the sympathetic nervous system.
2. So the drug acts like stress.
3. The heart rate goes up and peristalsis slows.