Endocrine System Practice

Use this key to check answers and read the explanations.

1. What do we call the chemical messages made by endocrine glands to help different parts of the body communicate?

A. Hormones
B. Antibodies
C. Digestive enzymes
D. Red blood cells

Correct answer: A. Hormones
Hormones carry information from the cells that release them to cells that can respond. Endocrine hormones travel through the bloodstream.

2. Which gland has two lobes in the front of the neck, just below the voice box?

A. Pineal gland
B. Pituitary gland
C. Thyroid gland
D. Adrenal gland

Correct answer: C. Thyroid gland
The thyroid sits below the voice box. A narrow bridge connects its two lobes across the front of the windpipe.

3. Which glands would you label directly above the left and right kidneys in an anatomy drawing?

A. Parathyroid glands
B. Adrenal glands
C. Sublingual glands
D. Lacrimal glands

Correct answer: B. Adrenal glands
There are two adrenal glands. One sits at the upper end of each kidney.

4. Which small gland sits at the base of the brain and connects to the hypothalamus by a stalk?

A. Parathyroid gland
B. Thyroid gland
C. Pineal gland
D. Pituitary gland

Correct answer: D. Pituitary gland
A stalk joins the pituitary gland to the hypothalamus. The connection helps the hypothalamus regulate pituitary activity.

5. Which organ contains clusters of hormone-producing cells and also makes digestive enzymes?

A. Adrenal gland
B. Pancreas
C. Thyroid gland
D. Pituitary gland

Correct answer: B. Pancreas
Cell clusters called pancreatic islets release hormones. Other pancreatic cells make enzymes that contribute to digestion.

6. In a classroom diagram, secretion A enters nearby blood vessels. Secretion B travels through a duct to a body surface. Which route illustrates endocrine signaling?

A. Secretion A enters the bloodstream.
B. Secretion B moves through a duct.
C. Both routes lead directly into the bloodstream.
D. Both routes reach a body surface through a duct.

Correct answer: A. Secretion A enters the bloodstream.
Endocrine secretions reach the blood without traveling through a duct. A duct carrying a secretion to a surface is an example of an exocrine route.

7. In a fictional model, hormone H reaches cell A and cell B through the same blood vessel. Only cell B has a receptor that recognizes H. Which cell can respond directly to H?

A. Neither cell
B. Cell A only
C. Both cells
D. Cell B only

Correct answer: D. Cell B only
A responding cell must have a receptor that recognizes H. Both cells encounter the signal, but only cell B has the required receptor in this model.

8. The pineal gland releases melatonin. Which ordinary daily pattern is most directly linked to that signal?

A. The movement of air into the lungs on each breath
B. The route blood takes through the heart
C. The timing of the sleep–wake cycle
D. The contraction that starts a swallow

Correct answer: C. The timing of the sleep–wake cycle
Melatonin helps signal the timing of the daily sleep–wake cycle. Its release follows a daily pattern.

9. A student points to the small glands usually found on the back of the thyroid and labels them ‘thyroid lobes.’ Which correction names these structures and one of their roles?

A. They are parathyroid glands, which help regulate blood calcium.
B. They are parathyroid glands, which release melatonin.
C. They are adrenal glands, which help regulate blood calcium.
D. They are pancreatic islets, which release insulin.

Correct answer: A. They are parathyroid glands, which help regulate blood calcium.
The parathyroids are separate glands, typically found on the back of the thyroid. Their hormone helps control the amount of calcium in the blood.

10. A healthy-body diagram shows blood glucose rising after a meal and falling between meals. Which pair of hormones helps lower glucose after the rise and raise it after the fall, in that order?

A. Glucagon, then melatonin
B. Glucagon, then insulin
C. Melatonin, then insulin
D. Insulin, then glucagon

Correct answer: D. Insulin, then glucagon
Insulin helps lower blood glucose after it rises, while glucagon helps raise it when it falls. These opposing actions help keep blood glucose within a usual range.

11. A diagram has two steps. The hypothalamus signals the anterior pituitary, which then releases thyroid-stimulating hormone (TSH). Which arrow shows where TSH comes from and where it acts?

A. Thyroid to anterior pituitary
B. Hypothalamus to anterior pituitary
C. Anterior pituitary to thyroid
D. Anterior pituitary to hypothalamus

Correct answer: C. Anterior pituitary to thyroid
The hypothalamus sends the first hormone signal. The anterior pituitary sends TSH, which acts on the thyroid and prompts it to release thyroid hormones.

12. In a healthy-body model, a drop in blood calcium triggers more parathyroid hormone release. The hormone helps calcium rise again. What happens to hormone release as the calcium level recovers?

A. It continues to rise because recovering calcium strengthens the original trigger.
B. It decreases as the original trigger weakens.
C. It stays at the same increased rate even after the original trigger weakens.
D. It switches to the opposite role and starts lowering calcium directly.

Correct answer: B. It decreases as the original trigger weakens.
Lower calcium promotes parathyroid hormone release. As calcium recovers, that stimulus weakens, so less hormone is released. This is negative feedback.

13. Two fictional target tissues recognize hormone H. After H binds, cells in one tissue increase an activity and cells in the other decrease a different activity. Which conclusion fits both observations?

A. Both tissues must release H themselves before either can respond to it.
B. The drop in activity shows that H never reached the second tissue.
C. Either the rise or the fall must be unrelated because a hormone has only one possible effect.
D. The same hormone can produce different responses in different target tissues.

Correct answer: D. The same hormone can produce different responses in different target tissues.
Both tissues receive H. What happens after binding can vary by cell type, so different target tissues can respond differently to the same hormone.

14. A fictional feedback model starts at 20 units. Both runs first drop to 16. At the next two checks, run A reads 18 then 19, and run B reads 21 then 24. Which run steadily closes the gap from 20 after the drop?

A. Run A, with gaps of 4, 2, then 1 unit.
B. Run B, with gaps of 4, 1, then 4 units.
C. Both runs, because their values rise after the drop.
D. Neither run, because neither finishes exactly at 20.

Correct answer: A. Run A, with gaps of 4, 2, then 1 unit.
Run A's distance from 20 shrinks at each later check. Run B comes close at 21, then moves farther away at 24. A value can move toward its target without immediately reaching it.

15. In a fictional classroom model, signal R raises S, and S raises T. When T rises above its usual level, it reduces R. Which sequence shows how the loop can bring T back down?

A. R rises, S rises, and the upward effect on T grows.
B. R falls, S rises, and the upward effect on T grows.
C. R falls, S falls, and the upward effect on T weakens.
D. R rises, S falls, and the upward effect on T weakens.

Correct answer: C. R falls, S falls, and the upward effect on T weakens.
The rise in T pushes R down. Lower R gives less support to S, so S falls and exerts less upward pressure on T. The response counters the original change.