

Chapter 02: Homeostasis

Patton: Anatomy and Physiology, 9th Edition

MULTIPLE CHOICE

1. Of the 11 major body systems, which is the least involved in maintaining homeostasis?
 - a. Circulatory
 - b. Endocrine
 - c. Lymphatic
 - d. Reproductive

ANS: D DIF: Application REF: p. 25 TOP: System Level

2. *Homeostasis* can best be described as:
 - a. a constant state maintained by living and nonliving organisms.
 - b. a state of relative constancy.
 - c. adaptation to the external environment.
 - d. changes in body temperature.

ANS: B DIF: Application REF: p. 24 TOP: Homeostasis

3. Which of the following is not one of the basic components in a feedback control loop?
 - a. Effector mechanism
 - b. Transmitter
 - c. Sensor
 - d. Integrating center

ANS: B DIF: Memorization REF: p. 26
TOP: Basic Components of Control Mechanisms

4. The body's thermostat is located in the:
 - a. heart.
 - b. cerebellum.
 - c. pituitary.
 - d. hypothalamus.

ANS: D DIF: Memorization REF: p. 27
TOP: Basic Components of Control Mechanisms

5. The contraction of the uterus during the birth of a baby is an example of _____ feedback.
 - a. negative
 - b. positive
 - c. inhibitory
 - d. deviating

ANS: B DIF: Memorization REF: p. 28
TOP: Positive-Feedback Control Systems

6. Negative-feedback mechanisms:
 - a. minimize changes in blood glucose levels.
 - b. maintain homeostasis.

- c. are responsible for an increased rate of sweating when air temperature is higher than body temperature.
- d. All of the above are correct.

ANS: D DIF: Memorization
TOP: Negative-Feedback Control Systems

REF: p. 27

7. *Pathogenesis* can be defined as:
- a. a specific disease.
 - b. a group of diseases.
 - c. the course of disease development.
 - d. a subgroup of viruses.

ANS: C DIF: Memorization
TOP: Disease Terminology

REF: p. 32

8. Intracellular parasites that consist of DNA or RNA surrounded by a protein coat and sometimes by a lipoprotein envelope are called:
- a. viruses.
 - b. bacteria.
 - c. fungi.
 - d. protozoa.

ANS: A DIF: Memorization
TOP: Basic Mechanisms of Disease

REF: p. 32

9. The term that literally means self-immunity is:
- a. autoimmunity.
 - b. homoimmunity.
 - c. passive immunity.
 - d. active immunity.

ANS: A DIF: Memorization
TOP: Basic Mechanisms of Disease

REF: p. 33

10. *Epidemiology* is the study of the _____ of diseases in human populations.
- a. occurrence
 - b. distribution
 - c. transmission
 - d. All of the above are correct.

ANS: D DIF: Memorization
TOP: Disease Terminology

REF: p. 25

11. Which of the following may put one at risk for developing a given disease?
- a. Environment
 - b. Stress
 - c. Lifestyle
 - d. All of the above

ANS: D DIF: Memorization
TOP: Mechanisms of Disease

REF: p. 34

12. Negative-feedback control systems:
- oppose a change.
 - accelerate a change.
 - have no effect on the deviation from set point.
 - establish a new set point.

ANS: A DIF: Memorization
TOP: Negative-Feedback Control Systems

REF: p. 27

13. Positive-feedback control systems:
- have no effect on the deviation from set point.
 - accelerate a change.
 - ignore a change.
 - do not exist in human systems.

ANS: B DIF: Memorization
TOP: Positive-Feedback Control Systems

REF: p. 28

14. Shivering to try to raise your body temperature back to normal would be an example of:
- the body trying to maintain homeostasis.
 - a positive-feedback mechanism.
 - a negative-feedback mechanism.
 - both A and C.

ANS: D DIF: Synthesis REF: p. 27
TOP: Homeostasis/Negative-Feedback Control Systems

15. Eponyms are scientific terms that:
- sound alike but are spelled differently.
 - can have more than one meaning.
 - are based on a person's name.
 - are none of the above.

ANS: C DIF: Memorization
TOP: The Language of Science and Medicine

REF: p. 32

16. Which of the following is a protein substance with no DNA or RNA and is thought to be the cause of mad cow disease?
- Virus
 - Bacteria
 - Prion
 - Protozoan

ANS: C DIF: Memorization
TOP: Pathogenic Organisms

REF: p. 32

17. Of the pathogenic organisms, which of the following are the most complex?
- Viruses
 - Tapeworms
 - Bacteria
 - Protozoa

ANS: B DIF: Memorization

REF: p. 33

TOP: Pathogenic Organisms

18. If the secretion of oxytocin during childbirth operated as a negative-feedback control loop, what effect would it have on uterine contractions?
- Oxytocin would stimulate stronger uterine contractions.
 - Oxytocin would inhibit uterine contractions.
 - There would be no changes in the strength of the uterine contractions.
 - Uterine contractions would initially be weak and then gain strength after the release of the hormone.

ANS: B DIF: Application REF: p. 28
TOP: Positive-Feedback Control Systems

19. Intrinsic control:
- usually involves the endocrine or nervous system.
 - operates at the cellular level.
 - is sometimes called *autoregulation*.
 - operates at the system or organism level.

ANS: C DIF: Memorization REF: p. 30
TOP: Levels of Control

MATCHING

Match each term with its corresponding definition or explanation

- Prion
 - Tumor
 - Fungi
 - Gene mutation
 - Bacteria
 - Virus
 - Protozoa
- An intracellular parasite that consists of an RNA or DNA core surrounded by a protein coat
 - A type of protein that converts normal protein in the nervous system into abnormal proteins that cause loss of function
 - A tiny, primitive cell that lacks a nucleus and can cause infection
 - An abnormal growth or neoplasm
 - Altered DNA that causes abnormal proteins to be made that do not perform their intended function
 - A one-celled organism whose DNA is organized into a nucleus that can parasitize human tissue
 - Simple organisms that are similar to plants but lack chlorophyll, which allows plants to make their own food; because these organisms cannot make their own food, they parasitize human tissue
1. ANS: F DIF: Memorization REF: p. 32
TOP: Basic Mechanisms of Disease
2. ANS: A DIF: Memorization REF: p. 32
TOP: Basic Mechanisms of Disease

3. ANS: E DIF: Memorization REF: p. 32
TOP: Basic Mechanisms of Disease
4. ANS: B DIF: Memorization REF: p. 32
TOP: Basic Mechanisms of Disease
5. ANS: D DIF: Memorization REF: p. 32
TOP: Basic Mechanisms of Disease
6. ANS: G DIF: Memorization REF: p. 33
TOP: Basic Mechanisms of Disease
7. ANS: C DIF: Memorization REF: p. 32
TOP: Basic Mechanisms of Disease

SHORT ANSWER

1. Diagram a homeostatic control mechanism, including the three basic components.

ANS:

Answers will vary.

DIF: Synthesis REF: p. 26 TOP: Homeostatic Control Mechanisms

2. How does childbirth demonstrate positive feedback?

ANS:

Answers will vary.

DIF: Synthesis REF: p. 28 TOP: Positive-Feedback Control Systems

3. Give an example of how categories of risk factors or predisposing conditions could overlap.

ANS:

Answers will vary.

DIF: Synthesis REF: p. 32 TOP: Basic Mechanisms of Disease

4. Explain the feed-forward control system, and give an example of one in the body.

ANS:

Answers will vary.

DIF: Application REF: p. 30 TOP: Feed-Forward in Control Systems

ESSAY

1. Give an example of a system, either living or nonliving, that is designed to maintain a relatively constant condition by using a negative-feedback mechanism. Explain briefly how the system works to accomplish this.

ANS:

Answers will vary.

DIF: Synthesis REF: p. 27 TOP: Basic Components of Control Mechanisms