

Chapter 02: Homeostasis

Patton: Anatomy and Physiology, 10th 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, Table 2-1
TOP: Homeostatic Functions of Body Systems

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. 31 TOP: Homeostasis

3. The normal reading or range of normal is called the:
 - a. sensor point.
 - b. set point.
 - c. effector point.
 - d. integrator point.

ANS: B DIF: Memorization REF: p. 24
TOP: Set Point

4. 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. 27
TOP: Basic Components of Control Mechanisms

5. 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

6. 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
TOP: Positive Feedback in Control Systems

REF: p. 29

7. 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 in Control Systems

REF: p. 28

8. *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

9. 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. 34

10. 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. 34

11. *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. 32

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

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

REF: pp. 34-35

13. 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 in Control Systems

REF: p. 28

14. 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 in Control Mechanisms

REF: p. 28

15. 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: Negative Feedback in Control Systems

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. 33

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

ANS: B DIF: Memorization
TOP: Pathogenic Organisms

REF: p. 34

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 in 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
TOP: Levels of Homeostatic Control

REF: p. 31

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
TOP: Basic Mechanisms of Disease

REF: p. 34

2. ANS: A DIF: Memorization REF: p. 33
TOP: Basic Mechanisms of Disease
3. ANS: E DIF: Memorization REF: p. 34
TOP: Basic Mechanisms of Disease
4. ANS: B DIF: Memorization REF: p. 34
TOP: Basic Mechanisms of Disease
5. ANS: D DIF: Memorization REF: p. 33
TOP: Basic Mechanisms of Disease
6. ANS: G DIF: Memorization REF: p. 34
TOP: Basic Mechanisms of Disease
7. ANS: C DIF: Memorization REF: p. 34
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. 29 TOP: Positive Feedback in Control Systems

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

ANS:

Answers will vary.

DIF: Synthesis REF: pp. 34-35 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. 34 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: pp. 28-29 TOP: Basic Components of Control Mechanisms

2. Explain how your set point can change under varying circumstances.

ANS:

Answers will vary

DIF: Synthesis REF: pp. 29-30 TOP: Changing the Set Point