1. Physiology is best defined as the _____.
   a. study of all living things
   b. study of the bodily functions of living things
   c. study of human relationships
   d. maintenance of body temperature
   e. maintenance of physical fitness

ANSWER: b
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.1 Introduction to Physiology
LEARNING OBJECTIVES: HUPH.SHER.16.1.1 - Describe the physiological approach to explaining an event

2. What are the most basic building blocks of matter?
   a. tissue
   b. cells
   c. atoms
   d. bones
   e. amino acids

ANSWER: c
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

3. What are the four most common chemical elements in the human body?
   a. water, salt, protein, and fat
   b. iron, carbon, oxygen, and potassium
   c. blood, muscle, fat, and bone
   d. collagen, glucosamine, chondroitin, and cartilage
   e. oxygen, carbon, hydrogen, and nitrogen

ANSWER: e
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

4. Approximately how many red blood cells are replaced per minute in the human body on average?
   a. 150,000,000
   b. 50,000,000
   c. 5,000,000
   d. 500,000
   e. 5,000

ANSWER: a
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

5. Which structure encloses the cells of the human body?

a. a carbon shell
b. an electron cluster
c. microvilli
d. a plasma membrane
e. a protective protein sheath

ANSWER: d
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

6. The human body is made up of approximately how many specialized cell types?

a. 400
b. 200
c. 100
d. 50
e. 25

ANSWER: b
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

7. What occurs when a cell differentiates?

a. It becomes specialized to perform a particular function.
b. It stops using nutrients and dies.
c. It morphs into a faster dividing cell.
d. It divides into other cells that contain a lesser number of chromosomes.
e. It becomes physically larger and more complex.

ANSWER: a
DIFFICULTY: Bloom's: Understand
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

8. Which progression represents the correct hierarchy of organization, from simpler to more complex?

a. atom, cell, tissue, organ, system, organism
b. tissue, cell, system, organism, organ, body
c. system, atom, cell, organ, tissue, organism
d. atom, molecule, compound, cell, body, organism
e. chemical, cell, organ, tissue, system, organism

ANSWER: a
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

9. What type of tissue consists of cells specialized for exchanging materials with the environment?

a. connective
b. muscle
c. bone
d. nervous
e. epithelial

ANSWER: e
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms

10. What type of tissue consists of cells specialized for transmitting messages?

a. connective
b. muscle
c. bone
d. nervous
e. epithelial

ANSWER: d
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms

11. Which two cell types lose the ability to reproduce soon after they are formed?

a. skin cells and heart cells
b. epithelial cells and muscle cells
c. nerve cells and muscle cells
d. kidney cells and pancreatic cells
e. connective cells and nerve cells

ANSWER: c
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms

12. Of the different muscle types, which one can be voluntarily controlled?

a. smooth
b. arterial
c. cardiac
d. skeletal
e. heart

ANSWER: d
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body

13. What are the four primary tissue types?
    a. muscle, nervous, epithelial, and connective
    b. bone, nerves, brain, and skin
    c. epithelial, nervous, cardiovascular, and alimentary
    d. skin, epithelial, connective, and integumentary
    e. contractile, protective, absorptive, and integumentary

ANSWER: a
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body

14. Epithelial tissue is organized into what two general types of structures?
    a. cells and cell walls
    b. ducts and nuclei
    c. epithelial sheets and secretory glands
    d. protective and absorptive
    e. epithelial sheets and cell membranes

ANSWER: c
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body

15. The two main categories of glands are called ____.
    a. secretive and absorptive
    b. endocrine and exocrine
    c. internal and external
    d. embryonic and latent
    e. ducted and ductless

ANSWER: b
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands

16. What kind of glands secrete through ducts to the outside of the body (or cavity open to the outside)?
    a. endocrine
    b. embryonic
    c. external
    d. latent
    e. exocrine

ANSWER: e
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands

17. What are two examples of exocrine glands?
    a. sweat glands and glands that secrete digestive juices
    b. mammary glands and the pancreas
    c. the bladder and the kidneys
    d. thyroid gland and sweat glands
    e. pancreas and the pituitary gland

ANSWER: a
DIFFICULTY: Bloom's: Apply
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands

18. What are two examples of connective tissue?
    a. muscle and tendons
    b. bone and tendons
    c. ligaments and nerves
    d. cartilage and skin
    e. blood and muscle

ANSWER: b
DIFFICULTY: Bloom's: Apply
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body

19. What compound/molecule produced by connective tissue is a rubber band-like protein fiber?
    a. fibrin
    b. fibrinogen
    c. elastin
    d. glucosamine
    e. chondroitin

ANSWER: c
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body

20. What is the best definition of a body system?
    a. The containment of functional tissues
    b. A collection of diverse specialized cells
    c. A multi-cellular life form
    d. An integrated collection of related organs
    e. A living being capable of cognition

ANSWER: d
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms

21. How many body systems does the human body contain?

a. four
b. five
c. seven
d. nine
e. eleven

ANSWER: e
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

22. What type of fluid resides within cells?

a. systemic
b. extracellular
c. ribosomal
d. intracellular
e. plasma

ANSWER: d
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms

23. The extracellular fluid is made up of which two components?

a. lymph and plasma
b. cellular matrix and globular filtrate
c. plasma and interstitial fluid
d. white blood cells and lymph
e. red blood cells and interstitial fluid

ANSWER: c
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms

24. Broadly speaking, how many internal factors in the body must be homeostatically maintained?

a. nine
b. seven
c. five
d. four
e. three

ANSWER: b
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.2 - State the seven factors that must be homeostatically maintained

25. What do human cells require to carry out energy-yielding chemical reactions?

a. oxygen
b. carbon dioxide
c. salt
d. ATP molecules
e. sunlight

ANSWER: a
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.2 - State the seven factors that must be homeostatically maintained

26. What does "pH" measure?

a. The percentage of potassium in the extracellular fluid
b. The amount of phosphorus in the intracellular fluid
c. The relative amount of acidity based on hydrogen ions
d. The energy producing ability of a cell
e. The percentage of water in the interstitial fluid

ANSWER: c
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.2 - State the seven factors that must be homeostatically maintained

27. Electrolytes are best defined as _____.

a. chemicals that form ions in solution and conduct electricity
b. chemicals that generate electricity
c. compounds that form molecules without electrons
d. salts that exchange covalent electrons
e. salts that increase pH levels

ANSWER: a
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.2 - State the seven factors that must be homeostatically maintained

28. What electrolyte does the heart rely on most in order to keep a rhythmic beat?

a. potassium
b. phosphorus
c. magnesium
d. iron
e. sodium

ANSWER: a
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.2 - State the seven factors that must be homeostatically maintained

29. How many body systems contribute to homeostasis?

a. 5
b. 7
c. 9
d. 11
e. 15

ANSWER: d
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis

30. The integumentary system consists of ____.

a. connective tissue such as ligaments and tendons
b. everything related to the cardiovascular system
c. muscles and bones
d. nerves and ganglions
e. the skin and related structures

ANSWER: e
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis

31. Which mineral is most important for muscle movement and is stored in the skeletal system?

a. magnesium
b. iron
c. calcium
d. phosphorus
e. boron

ANSWER: c
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis

32. By what means does the endocrine system regulate bodily processes?

a. nerves
b. electrolytes
c. minerals such as calcium
d. carbon dioxide
e. hormones

ANSWER: e
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis

LEARNING OBJECTIVES: HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis

33. What are the three actions that the body's control system must perform in order to maintain homeostasis?
    a. Control the external environment, record information, and make adjustments.
    b. Control the internal environment, record information, and detect deviation.
    c. Detect information, integrate internal environment, and control changes.
    d. Detect deviations, control temperature, and maintain pH.
    e. Detect deviations, integrate information, and make appropriate adjustments.

ANSWER: e
DIFFICULTY: Bloom's: Apply
REFERENCES: 1.4 Homeostatic Control Systems
LEARNING OBJECTIVES: HUPH.SHER.16.1.4 - Describe the function of homeostatic control systems

34. What are the two classes of homeostatic control systems?
    a. conscious and unconscious
    b. intrinsic and extrinsic
    c. intrinsic and internal
    d. extrinsic and external
    e. automated and reflex

ANSWER: b
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.4 Homeostatic Control Systems
LEARNING OBJECTIVES: HUPH.SHER.16.1.4.1 - Distinguish between the two classes of homeostatic systems

35. Homeostatic control systems resist change by operating on what primary principle?
    a. The principle of positive feedback
    b. The principle of negative feedback
    c. The principle of integration
    d. The principle of assimilation
    e. The principle of deactivation

ANSWER: b
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.4 Homeostatic Control Systems
LEARNING OBJECTIVES: HUPH.SHER.16.1.4.1 - Distinguish between the two classes of homeostatic systems

36. The output in a positive feedback system becomes ____.
    a. inactivated
    b. static
    c. externalized
    d. amplified
    e. dampened

ANSWER: d
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.4 Homeostatic Control Systems

LEARNING OBJECTIVES: HUPH.SHER.16.1.4.2 - Compare the roles of negative and positive feedback in stabilizing physiological factors

37. Which sequence correctly illustrates a negative feedback system?
    a. input → negative effect → output → change
    b. external stimuli → effector → internal change → integration
    c. sensor → integrator → effector → compensatory response
    d. integrator → effector → compensatory response → sensor
    e. negative input → sensor → integrator → positive output

ANSWER: c
DIFFICULTY: Bloom's: Apply
REFERENCES: 1.4 Homeostatic Control Systems
LEARNING OBJECTIVES: HUPH.SHER.16.1.4.2 - Compare the roles of negative and positive feedback in stabilizing physiological factors

38. In addition to feedback mechanisms, what other control mechanism does the body use?
    a. balanced mechanisms
    b. feedforward mechanisms
    c. complimentary mechanisms
    d. hybrid mechanisms
    e. ancillary mechanisms

ANSWER: b
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.4 Homeostatic Control Systems
LEARNING OBJECTIVES: HUPH.SHER.16.1.4.3 - Discuss the role of feed forward mechanisms in the body

39. Which example best illustrates a feedforward mechanism?
    a. The release of thyroxin from the thyroid
    b. The production of red blood cells
    c. The replacement of skin cells
    d. The excretion of bile from the gall bladder
    e. The secretion of insulin following a meal

ANSWER: e
DIFFICULTY: Bloom's: Apply
REFERENCES: 1.4 Homeostatic Control Systems
LEARNING OBJECTIVES: HUPH.SHER.16.1.4.3 - Discuss the role of feed forward mechanisms in the body

40. What is a predicted outcome of a severe homeostatic disruption?
    a. death
    b. feedforward activity
    c. cellular uptake
    d. enhanced sensation
    e. adaptation

ANSWER: a
DIFFICULTY: Bloom's: Remember

REFERENCES: 1.4 Homeostatic Control Systems
LEARNING OBJECTIVES: HUPH.SHER.16.1.4.4 - Describe the consequence of disruptions in homeostasis

41. Physiology focuses exclusively on the study of human beings.

a. True
b. False

ANSWER: False
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.1 Introduction to Physiology
LEARNING OBJECTIVES: HUPH.SHER.16.1.1 - Describe the physiological approach to explaining an event

42. Physiology examines the mechanisms of actions. in the body

a. True
b. False

ANSWER: True
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.1 Introduction to Physiology
LEARNING OBJECTIVES: HUPH.SHER.16.1.1 - Describe the physiological approach to explaining an event

43. Within physiology, structure and function are inseparable.

a. True
b. False

ANSWER: True
DIFFICULTY: Bloom's: Apply
REFERENCES: 1.1 Introduction to Physiology
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

44. The four most common elements in the human body make up about 70% of the total chemistry.

a. True
b. False

ANSWER: False
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

45. The cell is the smallest unit capable of carrying out the processes associated with life.

a. True
b. False

ANSWER: True
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

46. The plasma membrane that surrounds each cell consists of non-fatty substances to allow for free movement of materials in and out of the cell.

a. True
b. False

ANSWER: False
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

47. Enzymes are specialized proteins that speed up particular chemical reactions in the body.

a. True
b. False

ANSWER: True
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

48. The three types of muscle tissue include skeletal, smooth, and connective.

a. True
b. False

ANSWER: False
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms

49. Epithelial sheets are layers of tightly joined cells that cover and line various parts of the body.

a. True
b. False

ANSWER: True
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body

50. Glands are epithelial tissue derivatives specialized for secreting.

a. True
b. False

ANSWER: True
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body

51. Blood is classified as connective tissue.

a. True
b. False

ANSWER: True
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body

LEARNING OBJECTIVES: HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body

52. Tendons and ligaments are classified as epithelial tissue.

a. True
b. False

ANSWER: False
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body

53. All endocrine glands contain ducts.

a. True
b. False

ANSWER: False
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands

54. The internal environment of a multicellular organism is the fluid surrounding cells, through which life-sustaining exchanges are made.

a. True
b. False

ANSWER: True
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms

55. Homeostasis is a static-state control system within the body.

a. True
b. False

ANSWER: False
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms

56. Long-term adaptations make the body more efficient in responding to an ongoing or repetitive challenge in homeostasis.

a. True
b. False

ANSWER: True
DIFFICULTY: Bloom's: Understand
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms

57. Exercise initially disrupts homeostasis.

a. True
b. False

ANSWER: True
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms

58. The respiratory system removes excess water, salt, acid, and other electrolytes from the plasma.

a. True
b. False

ANSWER: False
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis

59. Muscle tissue is the ultimate source of all red blood cells.

a. True
b. False

ANSWER: False
DIFFICULTY: Bloom's: Understand
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis

60. In contrast to the nervous system, the endocrine system regulates activities that require duration rather than speed, such as growth.

a. True
b. False

ANSWER: True
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis

61. The reproductive system is not essential for homeostasis, nor is it essential for survival of the individual.

a. True
b. False

ANSWER: True
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis

62. Intrinsic, or local, controls are learned by an organ.

a. True
b. False

ANSWER: False
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.4 Homeostatic Control Systems
LEARNING OBJECTIVES: HUPH.SHER.16.1.4.1 - Distinguish between the two classes of homeostatic systems

63. A common example of positive feedback is the control of room temperature via a thermostat.

a. True
b. False

ANSWER: False
DIFFICULTY: Bloom's: Apply
REFERENCES: 1.4 Homeostatic Control Systems
LEARNING OBJECTIVES: HUPH.SHER.16.1.4.2 - Compare the roles of negative and positive feedback in stabilizing physiological factors

64. Because the body's goal is to maintain stable, homeostatic conditions, positive feedback occurs more often than negative feedback.

a. True
b. False

ANSWER: False
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.4 Homeostatic Control Systems
LEARNING OBJECTIVES: HUPH.SHER.16.1.4.2 - Compare the roles of negative and positive feedback in stabilizing physiological factors

65. The body uses feedforward mechanisms less frequently than feedback mechanisms.

a. True
b. False

ANSWER: True
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.4 Homeostatic Control Systems
LEARNING OBJECTIVES: HUPH.SHER.16.1.4.3 - Discuss the role of feed forward mechanisms in the body

66. Physiology is closely related to _____, the study of the structure of the body.

ANSWER: anatomy
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.1 Introduction to Physiology
LEARNING OBJECTIVES: HUPH.SHER.16.1.1 - Describe the physiological approach to explaining an event

67. Common atoms combine to form the _____ of life, such as proteins, carbohydrates and fats.

ANSWER: molecules
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body

LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

68. The basic units of life are _____.
ANSWER: cells
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

69. The simplest forms of independent life are called _____ organisms.
ANSWER: single-celled, single celled
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

70. Each living organism must perform the following equation: food + O_2 ➞ CO_2 + H_2O + _____.
ANSWER: energy
DIFFICULTY: Bloom's: Apply
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

71. Tissues are groups of _____ with similar specialization.
ANSWER: cells
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

72. Muscle tissue is able to contract and, therefore, allows _____ of the body.
ANSWER: movement
DIFFICULTY: Bloom's: Understand
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body

73. A(n) _____ is the cavity within a hollow organ or tube.
ANSWER: lumen
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body

74. Glands are formed during _____ development by pockets of epithelial tissue.
ANSWER: embryonic
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands

75. _____ glands lack ducts and release their secretory products (hormones) into the blood.
ANSWER: Endocrine

DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands

76. Milk-secreting glands are examples of _____ glands.
ANSWER: exocrine
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands

77. _____ tissue is distinguished by relatively fewer cells within an abundance of extracellular material.
ANSWER: Connective
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body

78. Except for _____, cells within connective tissue produce specific structural molecules that they release into extracellular spaces.
ANSWER: blood
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.2 Levels of Organization in the Body
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body

79. The _____ environment is the surrounding environment in which an organism lives.
ANSWER: external
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms

80. The fluid outside the cells is called _____ fluid.
ANSWER: extracellular
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms

81. Body systems maintain _____, a dynamic steady state in the internal environment.
ANSWER: homeostasis
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms

82. Two natural categories of stem cells are _____ cells and tissue-specific cells from _____.

ANSWER: embryonic, adults
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms

83. _____ medicine is a field that involves repairing, replacing, or regenerating cells, tissues, or organs to establish normal function.
ANSWER: Regenerative
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms

84. Homeostasis involves both _____ compensatory responses and _____ adaptations among the different body systems.
ANSWER: short-term, long-term; short term, long term
DIFFICULTY: Bloom's: Understand
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms

85. Body cells function best within a(n) _____ temperature range.
ANSWER: narrow; small
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.2 - State the seven factors that must be homeostatically maintained

86. _____ is one of the easiest factors to monitor that shows both an immediate response to exercise and long-term adaptation to exercise program.
ANSWER: Heart rate
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis

87. _____ or systemic controls are regulatory mechanisms initiated outside an organ.
ANSWER: Extrinsic
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.4 Homeostatic Control Systems
LEARNING OBJECTIVES: HUPH.SHER.16.1.4.1 - Distinguish between the two classes of homeostatic systems

88. In a(n) _____ feedback control system, output is regulated to resist change so that the controlled variable is kept at a relatively steady set point.
ANSWER: negative
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.4 Homeostatic Control Systems

LEARNING OBJECTIVES: HUPH.SHER.16.1.4.2 - Compare the roles of negative and positive feedback in stabilizing physiological factors

89. The hormone oxytocin is controlled by a(n) _____ feedback loop during the birthing process.
ANSWER: positive
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.4 Homeostatic Control Systems
LEARNING OBJECTIVES: HUPH.SHER.16.1.4.2 - Compare the roles of negative and positive feedback in stabilizing physiological factors

90. The term _____ refers to the abnormal functioning of the body associated with disease.
ANSWER: pathophysiology
DIFFICULTY: Bloom's: Remember
REFERENCES: 1.4 Homeostatic Control Systems
LEARNING OBJECTIVES: HUPH.SHER.16.1.4.4 - Describe the consequence of disruptions in homeostasis

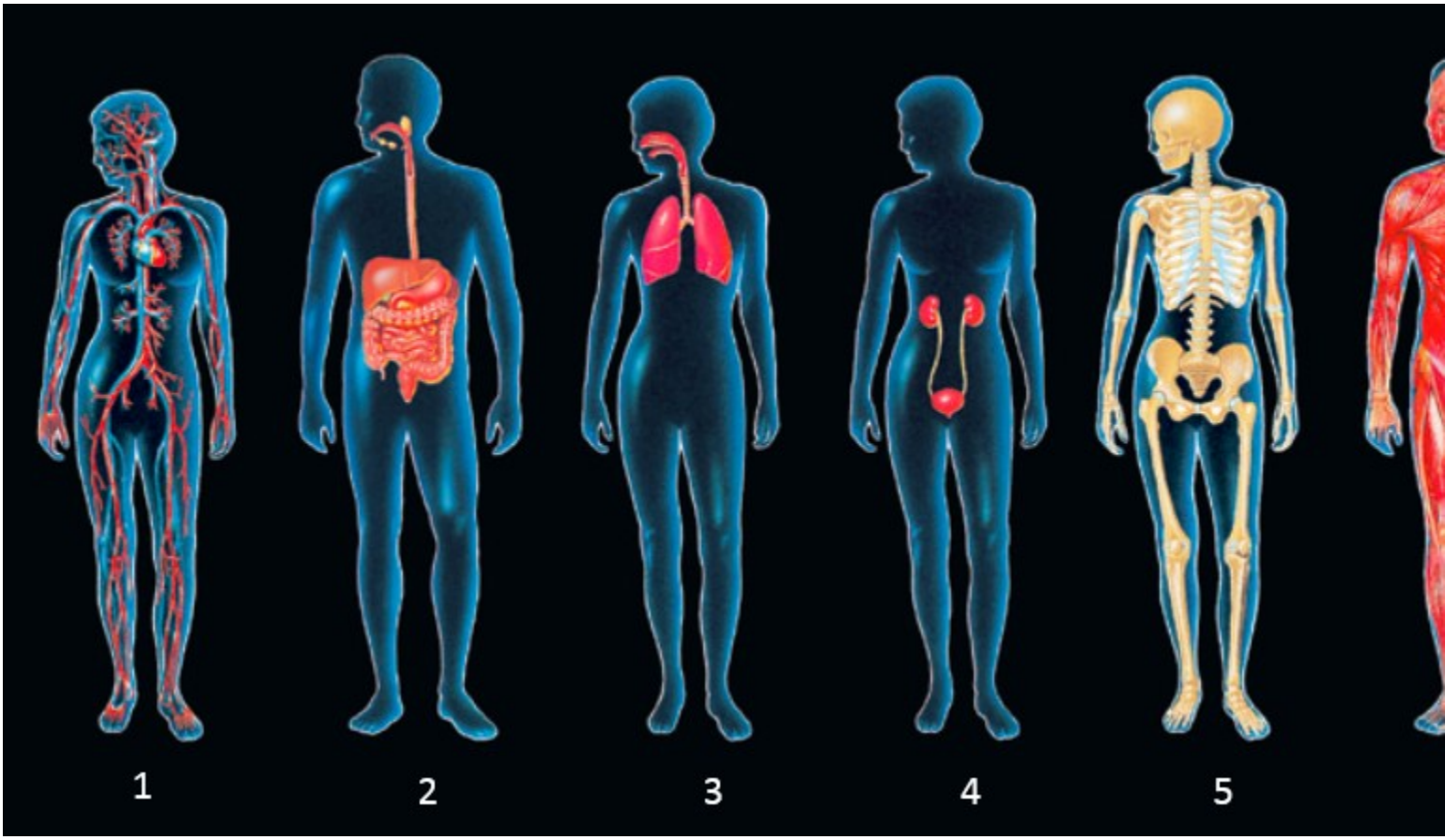

Figure 1-5

Answer the following questions using the accompanying figure.

91. Which numbered diagram shows the source of all blood cells?
a. 1
b. 2
c. 3

d. 4
e. 5
f. 6

ANSWER: e
DIFFICULTY: Bloom's: Apply
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms

92. Which numbered diagram shows the site of nutrient/waste exchange via alveoli?

a. 1
b. 2
c. 3
d. 4
e. 5
f. 6

ANSWER: c
DIFFICULTY: Bloom's: Apply
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms

93. Which numbered diagram depicts a system vulnerable to atherosclerosis disease?

a. 1
b. 2
c. 3
d. 4
e. 5
f. 6

ANSWER: f
DIFFICULTY: Bloom's: Analyze
REFERENCES: 1.3 Concept of Homeostasis
LEARNING OBJECTIVES: HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms

94. Which numbered diagram depicts a system most negatively affected by a lack of dietary protein?

a. 1
b. 2
c. 3
d. 4
e. 5
f. 6

ANSWER: a
DIFFICULTY: Bloom's: Analyze
REFERENCES: 1.3 Concept of Homeostasis

LEARNING OBJECTIVES: HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms

95. Which numbered diagram depicts the site of nutrient/waste exchange between cells and the interstitial fluid?

a.	1
b.	2
c.	3
d.	4
e.	5
f.	6

ANSWER: a

DIFFICULTY: Bloom's: Apply

REFERENCES: 1.3 Concept of Homeostasis

LEARNING OBJECTIVES: HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms

96. Describe a typical physiologist's explanation of shivering.

ANSWER: A physiologist's explanation of shivering is that when temperature-sensitive nerve cells detect a fall in body temperature, they signal the area in the brain responsible for temperature regulation. In response, this brain area activates nerve pathways that ultimately bring about involuntary, oscillating muscle contractions, which is commonly referred to as shivering.

DIFFICULTY: Bloom's: Apply

REFERENCES: 1.1 Introduction to Physiology

LEARNING OBJECTIVES: HUPH.SHER.16.1.1 - Describe the physiological approach to explaining an event

97. How does the interface between the air and blood in the lungs work?

ANSWER: The respiratory airways, which carry air from the outside into the lungs, branch extensively when they reach the lungs. Tiny air sacs cluster at the ends of the huge number of airway branches. Similarly, the vessels carrying blood into the lungs branch extensively and form dense networks of small vessels that encircle each air sac. This tremendous interface is crucial for the lungs' ability to efficiently carry out their function: the transfer of needed oxygen from the air into the blood and the unloading of the waste product carbon dioxide from the blood into the air. The greater the surface area available for these exchanges, the faster O2 and CO2 can move between the air and the blood.

DIFFICULTY: Bloom's: Apply

REFERENCES: 1.1 Introduction to Physiology

LEARNING OBJECTIVES: HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts

98. Distinguish between exocrine and endocrine glands.

ANSWER: Exocrine glands secrete through ducts to the outside of the body (or into a cavity that opens to the outside). Examples are sweat glands and glands that secrete digestive juices. Endocrine glands lack ducts and release their secretory products, known as hormones, internally into the blood. For example, the pancreas secretes insulin into the blood, which transports this hormone to its sites of action throughout the body.

DIFFICULTY: Bloom's: Understand

REFERENCES: 1.2 Levels of Organization in the Body

LEARNING OBJE HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands

CTIVES:

99. Discuss the ethical concerns and political issues of the use of embryonic stem cells (ESC).

ANSWER: Despite the potential, ESC research is fraught with controversy because of the source of these cells: they are isolated from discarded embryos from abortion clinics and *in vitro* fertility ("test-tube baby") clinics. Opponents of using ESC are morally and ethically concerned because embryos are destroyed in the process of harvesting these cells. Proponents argue that these embryos were destined to be destroyed anyway (a decision already made by the parents of the embryos) and that these stem cells have great potential for alleviating human suffering. As such, ESC science has become inextricably linked with stem cell politics.

DIFFICULTY: Bloom's: Analyze

REFERENCES: 1.3 Concept of Homeostasis

LEARNING OBJECTIVES: HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms

100. What must a body control system do to maintain homeostasis?

ANSWER: To maintain homeostasis, the control system must be able to (1) detect deviations from normal in the internal environmental factor that needs to be held within narrow limits; (2) integrate this information with any other relevant information; and (3) make appropriate adjustments in the activity of the body parts responsible for restoring this factor to its desired value.

DIFFICULTY: Bloom's: Understand

REFERENCES: 1.4 Homeostatic Control Systems

LEARNING OBJECTIVES: HUPH.SHER.16.1.4 - Describe the function of homeostatic control systems