Chapter 01 Test Bank

Student: _____

1. Which of these is NOT one of the four general categories of cells that make up the human body?
A. epithelial cells
B. collagen cells
C. connective tissue cell
D. neuron
E. muscle cell

2. Physiology is the study of
A. How two organisms interact
B. How organisms function
C. The spread of diseases
D. The structure of the body

3. The study of disease states in the body is called
A. Pathophysiology
B. Anatomy
C. Homeostasis
D. Biology
E. Histology

4. Which is NOT a connective tissue cell?
A. bone cells
B. skeletal muscle cells
C. blood cells
D. fat cells
E. cartilage cells

5. What is the principal function performed by epithelial cells?
A. fat storage
B. anchoring body structures
C. forming boundaries between body compartments
D. generating movement
E. transmitting electrical signals

6. The cell type that is specialized to communicate with other cells and control their activities is
A. Epithelial cells
B. Muscle cells

C. Connective tissue cells
D. Nerve cells

7. What is the term for the developmental process that leads to specialized cell types?
A. genomics
B. differentiation
C. homeostasis
D. positive feedback
E. acclimatization

8. Which best describes the extracellular matrix?
A. It is found just inside the cell membrane in all tissues, it sends branching collagen fibers between cells to connect them, and it transmits chemical information from the interior of one cell to the interior of adjacent cells.
B. It is a tissue having more than the four general cell types, it transports proteins and polysaccharides between body compartments, and it is the route by which chemical signals like hormones reach all parts of the body.
C. It covers the body's surface, it contains connective and muscle tissue, and it helps generate movement.
D. It surrounds cells, it contains proteins, polysaccharides and minerals, it provides a scaffold for cell attachment, and it transmits chemical messengers to cells.

9. If a person begins to sweat upon entering a hot room but continued sweating is able to keep the body temperature constant, which of these best describes her condition?
A. She is in an equilibrium state.
B. She is not using energy to maintain a constant temperature.
C. She is in a steady state
D. She is using a positive feedback mechanism.

10. Which concept is the defining feature of the discipline of physiology?
A. descent with modification
B. homeostasis
C. evolution
D. dimorphism
E. differentiation

11. Describing a physiological variable as "homeostatic," means that it
A. has varied from the normal value, and will remain constant at the new value.
B. never varies from an exact set point value.
C. is in an equilibrium state that requires no energy input to stay at the normal value.
D. is in a state of dynamic constancy that is regulated to remain near a stable set point value.
E. has no normal range, but will just change to match the outside environmental conditions.

12. Which of the following situations best represents a homeostatic mechanism?

A. A person who becomes very nervous begins to sweat profusely.
B. After going outside on a hot day, the core body temperature increases.
C. Increasing the size of fast food restaurant portions causes body weight to increase.
D. After eating a large batch of salty popcorn, levels of salt in the urine increase.
E. As age increases, the amount of calcium in bones tends to decrease.

13. What term is used to describe the steady state value for any variable that the body attempts to maintain?

A. Set point
B. Equilibrium potential
C. Error signal
D. Reflex arc
E. Median value

14. Which of components of a general reflex arc are listed in the order information typically flows through them following a stimulus?
A. effector, afferent pathway, integrating center, efferent pathway, receptor
B. effector, efferent pathway, integrating center, afferent pathway, receptor
C. integrating center, receptor, afferent pathway, efferent pathway, effector
D. receptor, efferent pathway, integrating center, afferent pathway, effector
E. receptor, afferent pathway, integrating center, efferent pathway, effector

15. Feedforward regulatory processes
A. work in anticipation of changes in regulated variables.
B. are identical to positive feedback processes
C. Lead to instability of the regulated variable
D. Maximize fluctuations in the regulated variable
E. tend to force physiological variables away from their set point.

16. Which situation describes a feedforward mechanism?
A. Blood glucose returns toward normal an hour after a meal.
B. The smell of rotten food on a plate triggers the vomit reflex.
C. A drop in core body temperature triggers shivering.
D. An increase in core body temperature stimulates sweating
E. Food in the stomach triggers the production of stomach acid.

17. What is the general purpose of positive feedback mechanisms?
A. to maintain a constant internal environment
B. to anticipate changes in the environment
C. to return a variable toward the set point
D. to bring about a rapid change in the body
E. to detect changes in the external environment

18. Shivering in response to a cold draft is an example of
A. A homeostatic mechanism
B. Negative feedback
C. A physiological reflex
D. Thermoregulation
E. All of the choices are correct

19. If the amount of sodium in the blood decreases, what would a negative feedback control mechanism be expected to do?
A. Decrease the amount of sodium in the blood.
B. Increase the amount of sodium in the blood.
C. Leave the amount of sodium unchanged.
D. Change the set point for sodium.
E. Inhibit the ingestion of more sodium.

20. What is the best description of the efferent pathway of a reflex arc?
A. signals from the integrating center to receptors
B. the route by which receptors send signals to effectors
C. signaling pathway for receptors to influence the integrating center
D. the route by which effector organs send signals to receptors
E. the route by which signals from an integrating center reach effector organs

21. Which one of the following is the correct sequence for a regulatory reflex arc?
A. Stimulus, effector, efferent pathway, integrating center, afferent pathway, receptor
B. Stimulus, receptor, efferent pathway, integrating center, afferent pathway, effector
C. Stimulus, receptor, afferent pathway, integrating center, efferent pathway, effector
D. Stimulus, effector, afferent pathway, integrating center, efferent pathway, receptor
E. Effector, efferent pathway, integrating center, afferent pathway, receptor, stimulus

22. Identify the effectors in this homeostatic reflex: Eating a salt-rich meal increases blood volume and pressure, stretching blood vessel walls. Nerve signals sent to the brainstem stimulate changes in hormonal and neural signaling. The heart rate is slowed, blood vessel walls are relaxed, and the kidneys increase urinary salt. The blood pressure returns toward normal.
A. brainstem and blood vessels
B. blood vessels, hormones and nerves
C. heart, kidneys and blood vessels
D. brainstem, blood vessels, and kidneys
E. hormones and nerves

23. The hormone insulin enhances the transport of glucose into body cells. Its secretion is controlled by a negative feedback system between the concentration of glucose in the blood and the cells that secrete insulin. Which of the following statements is most likely to be correct?
A. A decrease in blood glucose concentration will stimulate insulin secretion, which will in turn lower the blood glucose concentration still further

B. An increase in blood glucose concentration will stimulate insulin secretion, which will in turn lower the blood glucose concentration
C. A decrease in blood glucose concentration will stimulate insulin secretion, which will in turn increase the blood glucose concentration
D. An increase in blood glucose concentration will stimulate insulin secretion, which will in turn increase the blood glucose concentration still further

24. How are endocrine glands and hormones involved in homeostatic reflexes?
A. Endocrine glands can be receptors, and hormones can be effectors.
B. Endocrine glands can be integrators and hormones can be efferent pathways.
C. Endocrine glands can be efferent pathways and hormones can be effectors
D. Endocrine glands are not part of reflex mechanisms, but hormones can be afferent or efferent pathways
E. They are not involved; reflexes only involve actions of the nervous system.

25. What is a hormone?
A. a chemical released from a nerve cell that affects nearby cells across a synapse
B. a chemical released from an endocrine gland that affects target cells without entering the bloodstream
C. a chemical found in the blood that catalyzes the destruction of ingested toxins and foreign substances
D. a chemical excreted from sweat gland that signals other individuals about the physiological status of the body
E. a chemical regulator secreted from an endocrine gland that travels through the bloodstream to affect target cells

26. Some neurons in the vagus nerve have synaptic connections to sinoatrial (pacemaker) cells in the heart. These neurons secrete acetylcholine, which ultimately results in a decreased heart rate. This is an example of

A. endocrine control
B. exocrine control
C. hormonal control
D. neural control
E. paracrine control

27. Heart rate is increased by the release of epinephrine by the adrenal medulla into the bloodstream. This is an example of
A. endocrine control
B. exocrine control
C. paracrine control
D. direct neural control
E. positive feedback

28. How is autocrine regulation best described?
A. Chemical regulators are released directly into blood vessels.
B. Chemical regulators released by cells affect the functional status of different kinds of cells in the vicinity of the secretory cell.
C. Chemical regulators affect the same cells that produce them.

D. Chemical regulators reach their site of action through a duct.
E. Chemical regulators are continuously released in constant amounts by the cell.

29. The tall slender body shape that helps to dissipate heat in people native to equatorial regions is an example of
A. an adaptation.
B. acclimatization.
C. set point resetting.
D. homeostasis.
E. phase-shift.

30. After spending several days at a high altitude, where oxygen pressure is low, a person will begin to produce more red blood cells, which enhances the ability of blood to carry oxygen to the tissues. What term best describes this type of response?
A. developmental acclimatization
B. positive feedback
C. physiological acclimatization
D. feedforward regulation
E. evolution

31. Circadian rhythms are biological rhythms with what main characteristic?
A. They are cyclical, like the 28-day female menstrual cycle.
B. They are cyclical, like the rhythmic beating of the heart.
C. They are voluntary rhythms, like the time you decide to eat lunch each day.
D. They cease to occur when a person is in a dark environment.
E. They repeat approximately every 24 hours, like daily spikes in hormone secretion.

32. What is the location of the internal pacemaker that sets biological rhythms?
A. suprachiasmatic nucleus of the brain
B. ventricles of the heart
C. endocrine gland in the gonads
D. photoreceptors of the eye
E. the adrenal glands

33. A protein is found in blood that is produced by the pancreas and acts on receptors of cells in the liver. What type of physiological regulator is it most likely to be?
A. a hormone
B. an autocrine signal
C. a paracrine signal
D. a neurotransmitter
E. an enzyme

34. Which best describes how the total body balance of any chemical substance is determined?

A. the rate the body produces the substance
B. the rate the substance is secreted from the body
C. the rate the substance is metabolized by the body
D. the difference between the amount of substance lost from the body and the amount gained the body
E. the amount produced by the body minus the amount metabolized by the body

35. A burn patient ingests 100 grams of protein per day and loses 110 grams of protein per day due to the injury. What is the overall protein state of the patient?
A. Positive protein balance
B. Negative protein balance
C. Stable protein balance
D. A state that can't be determined

36. Eating a bag of salty potato chips without increasing sodium excretion would result in what state?
A. positive sodium balance
B. negative sodium balance
C. stable sodium balance
D. It can't be determined without knowing the size of the sodium pool

37. Differentiation is necessary before a cell can exchange material with its environment.
True False

38. The number of distinct cell types in the human body is about twenty.
True False

39. One function of epithelial cells is to form selective barriers regulating exchange of materials across them.
True False

40. Organs are generally composed of only one kind of tissue.
True False

41. The respiratory system is primarily responsible for transporting blood to the body's tissues.
True False

42. Homeostasis refers to the relative constancy of the external environment.
True False

43. The composition of the fluid bathing the cells of the body is the same as that within the cells.
True False

44. The extracellular fluid compartment includes the interstitial fluid and blood plasma.
True False

45. Homeostatic control systems and acclimatization are examples of biological adaptations.
True False

46. A person who is acclimated to a hot environment will begin to react physiologically to a decreased environmental temperature faster than a person who is not.
True False

47. When loss of a substance from the body exceeds gain, the body is said to be in positive balance for that substance.
True False

48. _____ is the general term for a chemical released by axon terminals into a synaptic cleft.
_____

49. _____ is the general term for a chemical released by axon terminals into the bloodstream.

_____

50. _____ regulation describes regulation of cellular activity by messengers from nearby cells.
_____

51. _____ is term describing regulation of cellular activity by chemical mediators produced by that same cell.
_____

52. An experimental subject is isolated in an underground room with no windows, no clocks, and no contact with the outside world. Researchers monitoring his behavior observe that he eats breakfast a little bit later each day. What term best describes the subject's biological activity?
A. circadian rhythm
B. free-running rhythm

C. jet lag
D. phase shift
E. entrainment

53. Which equation is most accurate?
A. extracellular fluid volume + interstitial fluid volume = whole body fluid volume
B. intracellular fluid volume + interstitial fluid volume = extracellular fluid volume
C. extracellular fluid volume - interstitial fluid volume = plasma volume
D. plasma volume + intracellular fluid volume = extracellular fluid volume
E. total body fluid volume - intracellular fluid volume = interstitial fluid volume

54.
True False

55.
True False

56.
True False

57.
True False

Chapter 01 Test Bank Key

1. Which of these is NOT one of the four general categories of cells that make up the human body?
A. epithelial cells
B. collagen cells
C. connective tissue cell
D. neuron
E. muscle cell

Bloom's: Level: 1. Remember
Learning Outcome: 01.02
Section: 01.02
Topic: Cells

2. Physiology is the study of
A. How two organisms interact
B. How organisms function
C. The spread of diseases
D. The structure of the body

Bloom's: Level: 1. Remember
Learning Outcome: 01.01
Section: 01.01
Topic: General principles of physiology

3. The study of disease states in the body is called
A. Pathophysiology
B. Anatomy
C. Homeostasis
D. Biology
E. Histology

Bloom's: Level: 1. Remember
Learning Outcome: 01.01
Section: 01.01
Topic: General principles of physiology

4. Which is NOT a connective tissue cell?
A. bone cells
B. skeletal muscle cells
C. blood cells
D. fat cells
E. cartilage cells

Bloom's: Level: 1. Remember
Learning Outcome: 01.02
Section: 01.02
Topic: Cells

5. What is the principal function performed by epithelial cells?
A. fat storage
B. anchoring body structures
C. forming boundaries between body compartments
D. generating movement
E. transmitting electrical signals

Bloom's: Level: 1. Remember
Learning Outcome: 01.02
Section: 01.02
Topic: Cells

6. The cell type that is specialized to communicate with other cells and control their activities is
A. Epithelial cells

B. Muscle cells
C. Connective tissue cells
D. Nerve cells

Bloom's: Level: 1. Remember
Learning Outcome: 01.02
Section: 01.02
Topic: Cells

7. What is the term for the developmental process that leads to specialized cell types?
A. genomics
B. differentiation
C. homeostasis
D. positive feedback
E. acclimatization

Bloom's: Level: 1. Remember
Learning Outcome: 01.02
Section: 01.02
Topic: Cells

8. Which best describes the extracellular matrix?
A. It is found just inside the cell membrane in all tissues, it sends branching collagen fibers between cells to connect them, and it transmits chemical information from the interior of one cell to the interior of adjacent cells.
B. It is a tissue having more than the four general cell types, it transports proteins and polysaccharides between body compartments, and it is the route by which chemical signals like hormones reach all parts of the body.
C. It covers the body's surface, it contains connective and muscle tissue, and it helps generate movement.
D. It surrounds cells, it contains proteins, polysaccharides and minerals, it provides a scaffold for cell attachment, and it transmits chemical messengers to cells.

Bloom's: Level: 2. Understand
Learning Outcome: 01.02
Section: 01.02
Topic: Cells

9. If a person begins to sweat upon entering a hot room but continued sweating is able to keep the body temperature constant, which of these best describes her condition?
A. She is in an equilibrium state.
B. She is not using energy to maintain a constant temperature.
C. She is in a steady state
D. She is using a positive feedback mechanism.

mechanism

Bloom's: Level: 2. Understand
Learning Outcome: 01.05
Section: 01.05
Topic: Homeostatic control

10. Which concept is the defining feature of the discipline of physiology?
A. descent with modification
B. homeostasis
C. evolution
D. dimorphism
E. differentiation

Bloom's: Level: 2. Understand
Learning Outcome: 01.04
Section: 01.04
Topic: General principles of physiology
Topic: Homeostatic control

11. Describing a physiological variable as "homeostatic," means that it
A. has varied from the normal value, and will remain constant at the new value.
B. never varies from an exact set point value.
C. is in an equilibrium state that requires no energy input to stay at the normal value.
D. is in a state of dynamic constancy that is regulated to remain near a stable set point value.
E. has no normal range, but will just change to match the outside environmental conditions.

Bloom's: Level: 2. Understand
Learning Outcome: 01.04
Section: 01.04
Topic: General principles of physiology
Topic: Homeostatic control

12. Which of the following situations best represents a homeostatic mechanism?
A. A person who becomes very nervous begins to sweat profusely.
B. After going outside on a hot day, the core body temperature increases.
C. Increasing the size of fast food restaurant portions causes body weight to increase.
D. After eating a large batch of salty popcorn, levels of salt in the urine increase.
E. As age increases, the amount of calcium in bones tends to decrease.

Bloom's: Level: 2. Understand
Learning Outcome: 01.05
Section: 01.05
Topic: Homeostatic control

13. What term is used to describe the steady state value for any variable that the body attempts to maintain?

A. Set point
B. Equilibrium potential
C. Error signal
D. Reflex arc
E. Median value

Bloom's: Level: 1. Remember
Learning Outcome: 01.05
Section: 01.05
Topic: Homeostatic control

14. Which of components of a general reflex arc are listed in the order information typically flows through them following a stimulus?
A. effector, afferent pathway, integrating center, efferent pathway, receptor
B. effector, efferent pathway, integrating center, afferent pathway, receptor
C. integrating center, receptor, afferent pathway, efferent pathway, effector
D. receptor, efferent pathway, integrating center, afferent pathway, effector
E. receptor, afferent pathway, integrating center, efferent pathway, effector

Bloom's: Level: 1. Remember
Learning Outcome: 01.06
Section: 01.06
Topic: Homeostatic control

15. Feedforward regulatory processes
A. work in anticipation of changes in regulated variables.
B. are identical to positive feedback processes
C. Lead to instability of the regulated variable
D. Maximize fluctuations in the regulated variable
E. tend to force physiological variables away from their set point.

Bloom's: Level: 1. Remember
Learning Outcome: 01.05
Section: 01.05
Topic: Homeostatic control

16. Which situation describes a feedforward mechanism?
A. Blood glucose returns toward normal an hour after a meal.
B. The smell of rotten food on a plate triggers the vomit reflex.
C. A drop in core body temperature triggers shivering.
D. An increase in core body temperature stimulates sweating
E. Food in the stomach triggers the production of stomach acid.

Bloom's: Level: 2. Understand
Learning Outcome: 01.05
Section: 01.05
Topic: Homeostatic control

17. What is the general purpose of positive feedback mechanisms?
A. to maintain a constant internal environment
B. to anticipate changes in the environment
C. to return a variable toward the set point
D. to bring about a rapid change in the body
E. to detect changes in the external environment

Bloom's: Level: 2. Understand
Learning Outcome: 01.05
Section: 01.05
Topic: Homeostatic control

18. Shivering in response to a cold draft is an example of
A. A homeostatic mechanism
B. Negative feedback
C. A physiological reflex
D. Thermoregulation
E. All of the choices are correct

Bloom's: Level: 2. Understand
Learning Outcome: 01.05
Learning Outcome: 01.06
Section: 01.05
Section: 01.06
Topic: Homeostatic control

19. If the amount of sodium in the blood decreases, what would a negative feedback control mechanism be expected to do?
A. Decrease the amount of sodium in the blood.
B. Increase the amount of sodium in the blood.
C. Leave the amount of sodium unchanged.
D. Change the set point for sodium.
E. Inhibit the ingestion of more sodium.

Bloom's: Level: 2. Understand
Learning Outcome: 01.05
Section: 01.05
Topic: Homeostatic control

20. What is the best description of the efferent pathway of a reflex arc?
A. signals from the integrating center to receptors
B. the route by which receptors send signals to effectors
C. signaling pathway for receptors to influence the integrating center
D. the route by which effector organs send signals to receptors
E. the route by which signals from an integrating center reach effector organs

Bloom's: Level: 1. Remember
Learning Outcome: 01.06
Section: 01.06
Topic: Homeostatic control

21. Which one of the following is the correct sequence for a regulatory reflex arc?
A. Stimulus, effector, efferent pathway, integrating center, afferent pathway, receptor
B. Stimulus, receptor, efferent pathway, integrating center, afferent pathway, effector
C. Stimulus, receptor, afferent pathway, integrating center, efferent pathway, effector
D. Stimulus, effector, afferent pathway, integrating center, efferent pathway, receptor
E. Effector, efferent pathway, integrating center, afferent pathway, receptor, stimulus

Bloom's: Level: 1. Remember
Learning Outcome: 01.06
Section: 01.06
Topic: Homeostatic control

22. Identify the effectors in this homeostatic reflex: Eating a salt-rich meal increases blood volume and pressure, stretching blood vessel walls. Nerve signals sent to the brainstem stimulate changes in hormonal and neural signaling. The heart rate is slowed, blood vessel walls are relaxed, and the kidneys increase urinary salt. The blood pressure returns toward normal.
A. brainstem and blood vessels
B. blood vessels, hormones and nerves
C. heart, kidneys and blood vessels
D. brainstem, blood vessels, and kidneys
E. hormones and nerves

Bloom's: Level: 2. Understand
Learning Outcome: 01.06
Section: 01.06
Topic: Homeostatic control

23. The hormone insulin enhances the transport of glucose into body cells. Its secretion is controlled by a negative feedback system between the concentration of glucose in the blood and the cells that secrete insulin. Which of the following statements is most likely to be correct?
A. A decrease in blood glucose concentration will stimulate insulin secretion, which will in turn lower the blood glucose concentration still further
B. An increase in blood glucose concentration will stimulate insulin secretion, which will in turn lower the blood glucose concentration
C. A decrease in blood glucose concentration will stimulate insulin secretion, which will in turn increase the blood glucose concentration
D. An increase in blood glucose concentration will stimulate insulin secretion, which will in turn increase the blood glucose concentration still further

Bloom's: Level: 2. Understand
Learning Outcome: 01.05
Section: 01.05
Topic: Homeostatic control

24. How are endocrine glands and hormones involved in homeostatic reflexes?
A. Endocrine glands can be receptors, and hormones can be effectors.
B. Endocrine glands can be integrators and hormones can be efferent pathways.
C. Endocrine glands can be efferent pathways and hormones can be effectors
D. Endocrine glands are not part of reflex mechanisms, but hormones can be afferent or efferent pathways
E. They are not involved; reflexes only involve actions of the nervous system.

Bloom's: Level: 2. Understand
Learning Outcome: 01.06
Learning Outcome: 01.07
Section: 01.06
Section: 01.07
Topic: Homeostatic control

25. What is a hormone?
A. a chemical released from a nerve cell that affects nearby cells across a synapse
B. a chemical released from an endocrine gland that affects target cells without entering the bloodstream
C. a chemical found in the blood that catalyzes the destruction of ingested toxins and foreign substances

D. a chemical excreted from sweat gland that signals other individuals about the physiological status of the body
E. a chemical regulator secreted from an endocrine gland that travels through the bloodstream to affect target cells

Bloom's: Level: 1. Remember
Learning Outcome: 01.07
Section: 01.07
Topic: Homeostatic control

26. Some neurons in the vagus nerve have synaptic connections to sinoatrial (pacemaker) cells in the heart. These neurons secrete acetylcholine, which ultimately results in a decreased heart rate. This is an example of

A. endocrine control
B. exocrine control
C. hormonal control
D. neural control
E. paracrine control

Bloom's: Level: 2. Understand
Learning Outcome: 01.07
Section: 01.07
Topic: Homeostatic control

27. Heart rate is increased by the release of epinephrine by the adrenal medulla into the bloodstream. This is an example of
A. endocrine control
B. exocrine control
C. paracrine control
D. direct neural control
E. positive feedback

Bloom's: Level: 2. Understand
Learning Outcome: 01.07
Section: 01.07
Topic: Homeostatic control

28. How is autocrine regulation best described?
A. Chemical regulators are released directly into blood vessels.
B. Chemical regulators released by cells affect the functional status of different kinds of cells in the vicinity of the secretory cell.
C. Chemical regulators affect the same cells that produce them.
D. Chemical regulators reach their site of action through a duct.
E. Chemical regulators are continuously released in constant amounts by the cell.

Bloom's: Level: 1. Remember
Learning Outcome: 01.07
Section: 01.07
Topic: Homeostatic control

29. The tall slender body shape that helps to dissipate heat in people native to equatorial regions is an example of
A. an adaptation.
B. acclimatization.
C. set point resetting.
D. homeostasis.
E. phase-shift.

Bloom's: Level: 2. Understand
Learning Outcome: 01.08
Section: 01.08
Topic: Homeostatic control

30. After spending several days at a high altitude, where oxygen pressure is low, a person will begin to produce more red blood cells, which enhances the ability of blood to carry oxygen to the tissues. What term best describes this type of response?
A. developmental acclimatization
B. positive feedback
C. physiological acclimatization
D. feedforward regulation
E. evolution

Bloom's: Level: 2. Understand
Learning Outcome: 01.08
Section: 01.08
Topic: Homeostatic control

31. Circadian rhythms are biological rhythms with what main characteristic?
A. They are cyclical, like the 28-day female menstrual cycle.
B. They are cyclical, like the rhythmic beating of the heart.
C. They are voluntary rhythms, like the time you decide to eat lunch each day.
D. They cease to occur when a person is in a dark environment.
E. They repeat approximately every 24 hours, like daily spikes in hormone secretion.

Bloom's: Level: 1. Remember
Learning Outcome: 01.08
Section: 01.08
Topic: Homeostatic control

32. What is the location of the internal pacemaker that sets biological rhythms?
A. suprachiasmatic nucleus of the brain
B. ventricles of the heart
C. endocrine gland in the gonads
D. photoreceptors of the eye
E. the adrenal glands

Bloom's: Level: 1. Remember
Learning Outcome: 01.08
Section: 01.08
Topic: Homeostatic control

33. A protein is found in blood that is produced by the pancreas and acts on receptors of cells in the liver. What type of physiological regulator is it most likely to be?
A. a hormone
B. an autocrine signal
C. a paracrine signal
D. a neurotransmitter
E. an enzyme

Bloom's: Level: 1. Remember
Learning Outcome: 01.07
Section: 01.07
Topic: Homeostatic control

34. Which best describes how the total body balance of any chemical substance is determined?
A. the rate the body produces the substance
B. the rate the substance is secreted from the body
C. the rate the substance is metabolized by the body
D. the difference between the amount of substance lost from the body and the amount gained the body
E. the amount produced by the body minus the amount metabolized by the body

Bloom's: Level: 2. Understand
Learning Outcome: 01.08
Section: 01.08
Topic: Homeostatic control

35. A burn patient ingests 100 grams of protein per day and loses 110 grams of protein per day due to the injury. What is the overall protein state of the patient?
A. Positive protein balance
B. Negative protein balance
C. Stable protein balance
D. A state that can't be determined

Bloom's: Level: 2. Understand
Learning Outcome: 01.08
Section: 01.08
Topic: Homeostatic control

36. Eating a bag of salty potato chips without increasing sodium excretion would result in what state?
A. positive sodium balance
B. negative sodium balance
C. stable sodium balance
D. It can't be determined without knowing the size of the sodium pool

Bloom's: Level: 2. Understand
Learning Outcome: 01.08
Section: 01.08
Topic: Homeostatic control

37. Differentiation is necessary before a cell can exchange material with its environment.
FALSE

Bloom's: Level: 2. Understand
Learning Outcome: 01.02
Section: 01.02
Topic: Cells

38. The number of distinct cell types in the human body is about twenty.
FALSE

Bloom's: Level: 1. Remember
Learning Outcome: 01.02
Section: 01.02
Topic: Cells

39. One function of epithelial cells is to form selective barriers regulating exchange of materials across them.
TRUE

Bloom's: Level: 1. Remember
Learning Outcome: 01.02
Section: 01.02
Topic: Cells

40. Organs are generally composed of only one kind of tissue.
FALSE

Bloom's: Level: 1. Remember
Learning Outcome: 01.02
Section: 01.02
Topic: Cells

41. The respiratory system is primarily responsible for transporting blood to the body's tissues.
FALSE

Bloom's: Level: 1. Remember
Learning Outcome: 01.02
Section: 01.02
Topic: Respiratory System

42. Homeostasis refers to the relative constancy of the external environment.
FALSE

Bloom's: Level: 1. Remember
Learning Outcome: 01.04

Section: 01.04
Topic: Homeostatic control

43. The composition of the fluid bathing the cells of the body is the same as that within the cells.
FALSE

Bloom's: Level: 2. Understand
Learning Outcome: 01.03
Section: 01.03
Topic: General principles of physiology

44. The extracellular fluid compartment includes the interstitial fluid and blood plasma.
TRUE

Bloom's: Level: 1. Remember
Learning Outcome: 01.03
Section: 01.03
Topic: General principles of physiology

45. Homeostatic control systems and acclimatization are examples of biological adaptations.
TRUE

Bloom's: Level: 2. Understand
Learning Outcome: 01.05
Learning Outcome: 01.08
Section: 01.05
Section: 01.08
Topic: Homeostatic control

46. A person who is acclimated to a hot environment will begin to react physiologically to a decreased environmental temperature faster than a person who is not.
FALSE

Bloom's: Level: 2. Understand
Learning Outcome: 01.08
Section: 01.08
Topic: Homeostatic control

47. When loss of a substance from the body exceeds gain, the body is said to be in positive balance for that substance.
FALSE

Bloom's: Level: 1. Remember
Learning Outcome: 01.08
Section: 01.08
Topic: Homeostatic control

48. _____ is the general term for a chemical released by axon terminals into a synaptic cleft.

Neurotransmitter

Bloom's: Level: 1. Remember
Learning Outcome: 01.07
Section: 01.07
Topic: Homeostatic control

49. _____ is the general term for a chemical released by axon terminals into the bloodstream.

Neurohormone

Bloom's: Level: 1. Remember
Learning Outcome: 01.07
Section: 01.07
Topic: Homeostatic control

50. _____ regulation describes regulation of cellular activity by messengers from nearby cells.
Paracrine

Bloom's: Level: 1. Remember
Learning Outcome: 01.07
Section: 01.07
Topic: Homeostatic control

51. _____ is term describing regulation of cellular activity by chemical mediators produced by that same cell.
Autocrine

Bloom's: Level: 1. Remember
Learning Outcome: 01.07
Section: 01.07
Topic: Homeostatic control

52. An experimental subject is isolated in an underground room with no windows, no clocks, and no contact with the outside world. Researchers monitoring his behavior observe that he eats breakfast a little bit later each day. What term best describes the subject's biological activity?
A. circadian rhythm
B. free-running rhythm
C. jet lag
D. phase shift
E. entrainment

Bloom's: Level: 1. Remember
Learning Outcome: 01.08
Section: 01.08
Topic: Homeostatic control

53. Which equation is most accurate?

A. extracellular fluid volume + interstitial fluid volume = whole body fluid volume
B. intracellular fluid volume + interstitial fluid volume = extracellular fluid volume
C. extracellular fluid volume - interstitial fluid volume = plasma volume
D. plasma volume + intracellular fluid volume = extracellular fluid volume
E. total body fluid volume - intracellular fluid volume = interstitial fluid volume

Bloom's: Level: 1. Remember
Learning Outcome: 01.03
Section: 01.03
Topic: General principles of physiology

54.
TRUE

HAPS Objective: A01.01 Describe a person in anatomical position.
HAPS Objective: A01.02 Describe how to use the terms right and left in anatomical reference.
HAPS Objective: A02.01 Identify the various planes in which a body might be dissected.
HAPS Objective: A02.02 Describe the appearance of a body presented along various planes.
HAPS Objective: A03.01 Describe the location of the body cavities and identify the major organs found in each cavity.
HAPS Objective: A03.02 List and describe the location of the major anatomical regions of the body.
HAPS Objective: A03.03 Describe the location of the four abdominopelvic quadrants and the nine abdominopelvic regions and list the major organs located in each.
HAPS Objective: A04.01 List and define the major directional terms used in anatomy.
HAPS Objective: A04.02 Describe the location of body structures, using appropriate directional terminology.
HAPS Objective: A05.01 Define the terms anatomy and physiology.
HAPS Objective: A05.02 Give specific examples to show the interrelationship between anatomy and physiology.
HAPS Objective: A05.03 Describe the location of structures of the body, using basic regional and systemic terminology.
HAPS Objective: A06.01 Describe, in order from simplest to most complex, the major levels of organization in the human organism.
HAPS Objective: A06.02 Give an example of each level of organization.
HAPS Objective: A07.01 List the organ systems of the human body and their major components.
HAPS Objective: A07.02 Describe the major functions of each organ system.
HAPS Topic: Module A01 Anatomical position.
HAPS Topic: Module A02 Body planes and sections.
HAPS Topic: Module A03 Body cavities and regions.
HAPS Topic: Module A04 Directional terms.
HAPS Topic: Module A05 Basic terminology.
HAPS Topic: Module A06 Levels of organization.
HAPS Topic: Module A07 Survey of body systems.

55.
TRUE

HAPS Objective: Q01.01 List and describe the routes of water entry into the body and state representative volumes for each.
HAPS Objective: Q01.02 List and describe the routes of water loss from the body and state representative volumes for each.
HAPS Objective: Q01.03 Describe the mechanisms used to regulate water intake.
HAPS Objective: Q01.04 Describe the mechanisms used to regulate water output.
HAPS Objective: Q02.01 Describe the fluid compartments (including the subdivisions of the extracellular fluid) and state the relative volumes of each.
HAPS Objective: Q03.01 Define electrolyte.
HAPS Objective: Q03.02 Compare and contrast the relative concentrations of major electrolytes in intracellular and extracellular fluids.
HAPS Objective: Q03.03 Describe the function(s) of each abundant electrolyte found in body fluids, including sodium, chloride, potassium, phosphate and calcium.
HAPS Objective: Q03.04 Describe hormonal regulation of electrolyte levels in the plasma, including sodium, chloride, potassium, phosphate and calcium.
HAPS Objective: Q04.01 Explain the role of electrolytes and non-electrolytes in the determination of osmotic pressure.
HAPS Objective: Q04.02 Describe the forces that affect capillary filtration, including the determinants of each force.
HAPS Objective: Q04.03 Compare and contrast the roles that osmosis and capillary filtration play in the movement of fluids between compartments.
HAPS Objective: Q04.04 Describe the role of "capillary permeability" in fluid movement across the capillary wall.
HAPS Objective: Q04.05 Explain how dehydration and overhydration (water intoxication) develop and how fluids shift between the three major body compartments during each.
HAPS Objective: Q05.01 Define acid, base, pH and buffer.
HAPS Objective: Q05.02 State the normal pH range for arterial blood.
HAPS Objective: Q05.03a State the chemical equation for bicarbonate buffer system, the phosphate buffer system and the protein buffer system.
HAPS Objective: Q05.03b Explain the role of the bicarbonate buffer system, the phosphate buffer system and the protein buffer system in regulation of blood, interstitial fluid, and intracellular pH, including how each system responds to increases or decreases in pH.

HAPS Objective: Q05.04 Explain the role of hemoglobin in pH buffering.
HAPS Objective: Q06.01 State the normal ranges for PCO2 and HCO3 in arterial blood and summarize their relationship to blood pH.
HAPS Objective: Q06.02 Describe the role of the respiratory system in regulation of blood pH and predict how hypo- and hyperventilation will affect blood pH.
HAPS Objective: Q06.03 Explain the mechanisms by which the kidneys secrete hydrogen ions, and how this process affects blood pH.
HAPS Objective: Q06.04 Explain the mechanisms by which the kidneys retain bicarbonate ions, and how this process affects blood pH.
HAPS Objective: Q06.05 Discuss the concept of compensation to correct respiratory and metabolic acidosis and alkalosis.
HAPS Objective: Q06.06 Given appropriate arterial blood gas values, determine whether a patient has normal blood pH or is in respiratory acidosis or alkalosis or is in metabolic acidosis or alkalosis, and whether the acidosis/alkalosis is partially or fully compensated or uncompensated.
HAPS Objective: Q07.01 Provide specific examples to demonstrate how the cardiovascular, endocrine, and urinary systems respond to maintain homeostasis of fluid volume in the body.
HAPS Objective: Q07.02 Provide specific examples to demonstrate how the cardiovascular, endocrine, respiratory, and urinary systems respond to maintain homeostasis of electrolyte concentrations and pH of body fluids.
HAPS Objective: Q07.03 Explain how fluid volumes and distribution contribute to the maintenance of homeostasis in other body systems.
HAPS Objective: Q07.04 Explain how electrolyte concentrations and body fluid pH contribute to the maintenance of homeostasis in other body systems.
HAPS Objective: Q08.01 Predict factors or situations that would lead to a disruption of homeostasis by affecting the volume or composition of body fluids.
HAPS Objective: Q08.02 Predict factors or situations that would lead to a disruption of homeostasis by causing respiratory acidosis, respiratory alkalosis, metabolic acidosis, or metabolic alkalosis.
HAPS Objective: Q08.03 Predict the types of problems that would occur in the body if the volume and composition of body fluids were not maintained within normal homeostatic ranges.
HAPS Objective: Q08.04 Predict the types of problems that would occur in the body if body fluid pH were not maintained within the normal homeostatic range.
HAPS Topic: Module Q01 Regulation of water intake and output.
HAPS Topic: Module Q02 Description of the major fluid compartments.
HAPS Topic: Module Q03 Chemical composition of the major compartment fluids.
HAPS Topic: Module Q04 Movements between the major fluid compartments.
HAPS Topic: Module Q05 Buffer systems and their roles in acid/base balance.
HAPS Topic: Module Q06 Role of the respiratory and urinary systems in acid/base balance.
HAPS Topic: Module Q07 Application of homeostatic mechanisms.
HAPS Topic: Module Q08 Predictions related to homeostatic imbalance, including disease states and disorders.

56.
TRUE

HAPS Objective: B01.01 Define homeostasis.
HAPS Objective: B02.01 List the components of a feedback loop and explain the function of each.
HAPS Objective: B02.02 Compare and contrast positive and negative feedback in terms of the relationship between stimulus and response.
HAPS Objective: B02.03 Explain why negative feedback is the most commonly used mechanism to maintain homeostasis in the body.
HAPS Objective: B03.01 Provide an example of a negative feedback loop that utilizes the nervous system to relay information. Describe the specific organs, structures, cells or molecules (receptors, neurons, CNS structures, effectors, neurotransmitters) included in the feedback loop.
HAPS Objective: B03.02 Provide an example of a negative feedback loop that utilizes the endocrine system to relay information. Describe the specific cells or molecules (production cells, hormones, target cells) included in the feedback loop.
HAPS Objective: B03.03 Provide an example of a positive feedback loop in the body. Describe the specific structures (organs, cells or molecules) included in the feedback loop.
HAPS Objective: B04.01 Provide specific examples to demonstrate how organ systems respond to maintain homeostasis.
HAPS Objective: B04.02 Explain how different organ systems relate to one another to maintain homeostasis.
HAPS Objective: B05.01 Predict factors or situations affecting various organ systems that could disrupt homeostasis.
HAPS Objective: B05.02 Predict the types of problems that would occur in the body if various organ systems could not maintain homeostasis and allowed regulated variables (body conditions) to move away from normal.
HAPS Topic: Module B01 Definition.
HAPS Topic: Module B02 General types of homeostatic mechanisms.
HAPS Topic: Module B03 Examples of homeostatic mechanisms.
HAPS Topic: Module B04 Application of homeostatic mechanisms.
HAPS Topic: Module B05 Predictions related to homeostatic imbalance, including disease states and disorders.

57.
TRUE

HAPS Objective: J01.01 Describe the major functions of the endocrine system.
HAPS Objective: J01.02 Define the terms hormone, endocrine gland, endocrine tissue (organ), and target cell.
HAPS Objective: J01.03 Compare and contrast how the nervous and endocrine systems control body function, with emphasis on the mechanisms by which the controlling signals are transferred through the body and the time course of the response(s) and action(s).
HAPS Objective: J02.01 List the major chemical classes of hormones found in the human body.
HAPS Objective: J02.02 Describe how each class is transported in the blood.
HAPS Objective: J02.03 Compare and contrast the types of receptors (cell membrane or intracellular) that each class binds to.
HAPS Objective: J02.04 Compare and contrast the mechanism of response that each class elicits (i.e., change in gene expression or change in an intracellular pathway via phosphorylation mechanism) and relate the response mechanism to the biochemical nature of the hormone molecule.
HAPS Objective: J03.01 List and describe several types of stimuli that control production and secretion of hormones.
HAPS Objective: J03.02 Describe the roles of negative and positive feedback in controlling hormone release.
HAPS Objective: J04.01 Describe the locations of and the anatomical relationships between the hypothalamus, anterior pituitary and posterior pituitary glands.

HAPS Objective: J04.02 Define the terms releasing hormone, inhibiting hormone and tropic hormone.
HAPS Objective: J04.03 Explain the role of the hypothalamus in the release of anterior pituitary hormones.
HAPS Objective: J04.04 Explain the role of the hypothalamus in the production and release of posterior pituitary hormones.
HAPS Objective: J05.01a Describe the stimulus for release of growth hormone, thyroid-stimulating hormone, luteinizing hormone, follicle stimulating hormone, prolactin, adrenocorticotropic hormone, oxytocin, and antidiuretic hormone (or vasopressin).
HAPS Objective: J05.01b Identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce growth hormone, thyroid-stimulating hormone, luteinizing hormone, follicle stimulating hormone, prolactin, adrenocorticotropic hormone, oxytocin, and antidiuretic hormone (or vasopressin).
HAPS Objective: J05.01c Name the target tissue or cells for the hormone and describe the effect(s) of the hormone on the target tissue or cells of growth hormone, thyroid-stimulating hormone, luteinizing hormone, follicle stimulating hormone, prolactin, adrenocorticotropic hormone, oxytocin, and antidiuretic hormone (or vasopressin.
HAPS Objective: J05.01d Predict the larger effect that fluctuations in the hormone level will have on conditions (variables) within the body for growth hormone, thyroid-stimulating hormone, luteinizing hormone, follicle stimulating hormone, prolactin, adrenocorticotropic hormone, oxytocin, and antidiuretic hormone (or vasopressin).
HAPS Objective: J05.02a In the thyroid gland, describe the stimulus for release of the hormones thyroxine, triiodothyronine, calcitonin.
HAPS Objective: J05.02b In the thyroid gland, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce the hormones thyroxine, triiodothyronine, calcitonin.
HAPS Objective: J05.02c In the thyroid gland, name the target tissue or cells for the hormone and describe the effect(s) of the hormone on the target tissue or cells from thyroxine, triiodothyronine, calcitonin.
HAPS Objective: J05.02d In the thyroid gland, predict the larger effect that fluctuations in the hormone level will have on conditions (variables) within the body for thyroxine, triiodothyronine, calcitonin.
HAPS Objective: J05.03a In the parathyroid gland, describe the stimulus for release of the parathyroid hormone.
HAPS Objective: J05.03b In the parathyroid gland, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce the parathyroid hormone.
HAPS Objective: J05.03c In the parathyroid gland, name the target tissue or cells for the hormone and describe the effect(s) of the parathyroid hormone on the target tissue or cells.
HAPS Objective: J05.03d In the parathyroid gland, predict the larger effect that fluctuations in the parathyroid hormone level will have on conditions (variables) within the body.
HAPS Objective: J05.04a In the adrenal gland, describe the stimulus for release of glucocorticoids (cortisol), mineralocorticoids (aldosterone), gonadocorticoids, epinephrine and norepinephrine.
HAPS Objective: J05.04b In the adrenal gland, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce glucocorticoids (cortisol), mineralocorticoids (aldosterone), gonadocorticoids, epinephrine and norepinephrine.
HAPS Objective: J05.04c In the adrenal gland, name the target tissue or cells for the hormone and describe the effect(s) of glucocorticoids (cortisol), mineralocorticoids (aldosterone), gonadocorticoids, epinephrine and norepinephrine on the target tissue or cells.
HAPS Objective: J05.04d In the adrenal gland, predict the larger effect that fluctuations in glucocorticoids (cortisol), mineralocorticoids (aldosterone), gonadocorticoids, epinephrine and norepinephrine levels will have on conditions (variables) within the body.
HAPS Objective: J05.05a In the testis, describe the stimulus for release of testosterone and inhibin.
HAPS Objective: J05.05b In the testis, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce testosterone and inhibin.
HAPS Objective: J05.05c In the testis, name the target tissue or cells for testosterone and inhibin and describe the effect(s) of the hormone on the target tissue or cells.
HAPS Objective: J05.05d In the testis, predict the larger effect that fluctuations in testosterone and inhibin level will have on conditions (variables) within the body.
HAPS Objective: J05.06a In the ovary, describe the stimulus for release of estrogen, progesterone and inhibin.
HAPS Objective: J05.06b In the ovary, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce estrogen, progesterone and inhibin.
HAPS Objective: J05.06c In the ovary, name the target tissue or cells for estrogen, progesterone and inhibin and describe the effect(s) of the hormone on the target tissue or cells.
HAPS Objective: J05.06d In the ovary, predict the larger effect that fluctuations in estrogen, progesterone and inhibin levels will have on conditions (variables) within the body.
HAPS Objective: J05.07a In the pancreas, describe the stimulus for release of insulin and glucagon.
HAPS Objective: J05.07b In the pancreas, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce insulin and glucagon.
HAPS Objective: J05.07c In the pancreas, name the target tissue or cells for insulin and glucagon and describe the effect(s) of the hormone on the target tissue or cells.
HAPS Objective: J05.07d In the pancreas, predict the larger effect that fluctuations in insulin and glucagon levels will have on conditions (variables) within the body.
HAPS Objective: J05.08a In the kidney, describe the stimulus for release of erythropoietin and calcitrol (Vitamin D).
HAPS Objective: J05.08b In the kidney, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce erythropoietin and calcitrol (Vitamin D).
HAPS Objective: J05.08c In the kidney, name the target tissue or cells for erythropoietin and calcitrol (Vitamin D) and describe the effect(s) of the hormone on the target tissue or cells.
HAPS Objective: J05.08d In the kidney, predict the larger effect that fluctuations in erythropoietin and calcitrol (Vitamin D) levels will have on conditions (variables) within the body.
HAPS Objective: J05.09a In the thymus, describe the stimulus for release of thymosin.
HAPS Objective: J05.09b In the thymus, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce thymosin.
HAPS Objective: J05.09c In the thymus, name the target tissue or cells for thymosin and describe the effect(s) of the hormone on the target tissue or cells.
HAPS Objective: J05.09d In the thymus, predict the larger effect that fluctuations in thymosin will have on conditions (variables) within the body.
HAPS Objective: J05.10a In the heart, describe the stimulus for release of atrial natriuretic peptide.
HAPS Objective: J05.10b In the heart, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce atrial natriuretic peptide.
HAPS Objective: J05.10c In the heart, name the target tissue or cells for atrial natriuretic peptide and describe the effect(s) of the hormone on the target tissue or cells.
HAPS Objective: J05.10d In the heart, predict the larger effect that fluctuations in atrial natriuretic peptide will have on conditions (variables) within the body.
HAPS Objective: J05.11a: In the gastrointestinal tract, describe the stimulus for release of gastrin, secretin, cholecystokinin, motilin and gastric inhibiting peptide.
HAPS Objective: J05.11b In the gastrointestinal tract, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce gastrin, secretin, cholecystokinin, motilin and gastric inhibiting peptide.
HAPS Objective: J05.11c In the gastrointestinal tract, name the target tissue or cells for gastrin, secretin, cholecystokinin, motilin and gastric inhibiting peptide

hormone and describe the effect(s) of the hormone on the target tissue or cells.
HAPS Objective: J05.11d In the gastrointestinal tract, predict the larger effect that fluctuations in gastrin, secretin, cholecystokinin, motilin, gastric inhibiting peptide levels will have on conditions (variables) within the body.
HAPS Objective: J05.12a: In adipose tissue, describe the stimulus for release of leptin and resistin.
HAPS Objective: J05.12b In adipose tissue, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce leptin and resistin.
HAPS Objective: J05.12c In adipose tissue, name the target tissue or cells for leptin and resistin and describe the effect(s) of the hormone on the target tissue or cells.
HAPS Objective: J05.12d In adipose tissue, predict the larger effect that fluctuations in leptin and resistin levels will have on conditions (variables) within the body.
HAPS Objective: J05.13a: In the placenta, describe the stimulus for release of estrogen, progesterone and human chorionic gonadotropin.
HAPS Objective: J05.13b In the placenta, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce estrogen, progesterone and human chorionic gonadotropin.
HAPS Objective: J05.13c In the placenta, name the target tissue or cells for estrogen, progesterone and human chorionic gonadotropin and describe the effect(s) of the hormone on the target tissue or cells.
HAPS Objective: J05.13d In the placenta, predict the larger effect that fluctuations in estrogen, progesterone and human chorionic gonadotropin levels will have on conditions (variables) within the body.
HAPS Objective: J06.01 Define the terms paracrine and autocrine.
HAPS Objective: J06.02 List two major types of eicosanoids and discuss their production and functions.
HAPS Objective: J06.03 Discuss the production and function of growth factors.
HAPS Objective: J06.04 Justify whether or not paracrines, autocrines and growth factors should be considered to be part of the endocrine system.
HAPS Objective: J07.01 Describe the three stages of the stress response (general adaptation syndrome).
HAPS Objective: J07.02 List the hormones released during short-term stress and describe the hormonal actions.
HAPS Objective: J07.03 List the major hormones released during long-term stress and describe the hormonal actions.
HAPS Objective: J08.01 Provide specific examples to demonstrate how the endocrine organs respond to maintain homeostasis in the body.
HAPS Objective: J08.02 Explain how the endocrine organs relate to other body organs and systems to maintain homeostasis.
HAPS Objective: J09.01 Predict factors or situations affecting the endocrine organs that could disrupt homeostasis.
HAPS Objective: J09.02 Predict the types of problems that would occur in the body if the various endocrine organs could not maintain homeostasis.
HAPS Topic: Module J01 General functions of the endocrine system.
HAPS Topic: Module J02 Chemical classification of hormones and mechanism of hormone actions at receptors.
HAPS Topic: Module J03 Control of hormone secretion.
HAPS Topic: Module J04 Control by the hypothalamus and pituitary gland.
HAPS Topic: Module J05 Identity, source, secretory control, and functional roles of the major hormones produced by the body.
HAPS Topic: Module J06 Local hormones (paracrines and autocrines) and growth factors.
HAPS Topic: Module J07 Hormonal response to stress.
HAPS Topic: Module J08 Application of homeostatic mechanisms.
HAPS Topic: Module J09 Predictions related to homeostatic imbalance, including disease states and disorders.

Chapter 01 Test Bank Summary

Category	*# of Questions*
Bloom's: Level: 1. Remember	30
Bloom's: Level: 2. Understand	23
HAPS Objective: A01.01 Describe a person in anatomical position.	1
HAPS Objective: A01.02 Describe how to use the terms right and left in anatomical reference.	1
HAPS Objective: A02.01 Identify the various planes in which a body might be dissected.	1
HAPS Objective: A02.02 Describe the appearance of a body presented along various planes.	1
HAPS Objective: A03.01 Describe the location of the body cavities and identify the major organs found in each cavity.	1
HAPS Objective: A03.02 List and describe the location of the major anatomical regions of the body.	1
HAPS Objective: A03.03 Describe the location of the four abdominopelvic quadrants and the nine abdominopelvic regions and list the major organs located in each.	1
HAPS Objective: A04.01 List and define the major directional terms used in anatomy.	1
HAPS Objective: A04.02 Describe the location of body structures, using appropriate directional terminology.	1
HAPS Objective: A05.01 Define the terms anatomy and physiology.	1
HAPS Objective: A05.02 Give specific examples to show the interrelationship between anatomy and physiology.	1
HAPS Objective: A05.03 Describe the location of structures of the body, using basic regional and systemic terminology.	1

HAPS Objective: A06.01 Describe, in order from simplest to most complex, the major levels of organization in the human organism.	1
HAPS Objective: A06.02 Give an example of each level of organization.	1
HAPS Objective: A07.01 List the organ systems of the human body and their major components.	1
HAPS Objective: A07.02 Describe the major functions of each organ system.	1
HAPS Objective: B01.01 Define homeostasis.	1
HAPS Objective: B02.01 List the components of a feedback loop and explain the function of each.	1
HAPS Objective: B02.02 Compare and contrast positive and negative feedback in terms of the relationship between stimulus and response.	1
HAPS Objective: B02.03 Explain why negative feedback is the most commonly used mechanism to maintain homeostasis in the body.	1
HAPS Objective: B03.01 Provide an example of a negative feedback loop that utilizes the nervous system to relay information. Describe the specific organs, structures, cells or molecules (receptors, neurons, CNS structures, effectors, neurotransmitters) included in the feedback loop.	1
HAPS Objective: B03.02 Provide an example of a negative feedback loop that utilizes the endocrine system to relay information. Describe the specific cells or molecules (production cells, hormones, target cells) included in the feedback loop.	1
HAPS Objective: B03.03 Provide an example of a positive feedback loop in the body. Describe the specific structures (organs, cells or molecules) included in the feedback loop.	1
HAPS Objective: B04.01 Provide specific examples to demonstrate how organ systems respond to maintain homeostasis.	1
HAPS Objective: B04.02 Explain how different organ systems relate to one another to maintain homeostasis.	1
HAPS Objective: B05.01 Predict factors or situations affecting various organ systems that could disrupt homeostasis.	1
HAPS Objective: B05.02 Predict the types of problems that would occur in the body if various organ systems could not maintain homeostasis and allowed regulated variables (body conditions) to move away from normal.	1
HAPS Objective: J01.01 Describe the major functions of the endocrine system.	1
HAPS Objective: J01.02 Define the terms hormone, endocrine gland, endocrine tissue (organ), and target cell.	1
HAPS Objective: J01.03 Compare and contrast how the nervous and endocrine systems control body function, with emphasis on the mechanisms by which the controlling signals are transferred through the body and the time course of the response(s) and action(s).	1
HAPS Objective: J02.01 List the major chemical classes of hormones found in the human body.	1
HAPS Objective: J02.02 Describe how each class is transported in the blood.	1
HAPS Objective: J02.03 Compare and contrast the types of receptors (cell membrane or intracellular) that each class binds to.	1
HAPS Objective: J02.04 Compare and contrast the mechanism of response that each class elicits (i.e., change in gene expression or change in an intracellular pathway via phosphorylation mechanism) and relate the response mechanism to the biochemical nature of the hormone molecule.	1
HAPS Objective: J03.01 List and describe several types of stimuli that control production and secretion of hormones.	1
HAPS Objective: J03.02 Describe the roles of negative and positive feedback in controlling hormone release.	1
HAPS Objective: J04.01 Describe the locations of and the anatomical relationships between the hypothalamus, anterior pituitary and posterior pituitary glands.	1
HAPS Objective: J04.02 Define the terms releasing hormone, inhibiting hormone and tropic hormone.	1
HAPS Objective: J04.03 Explain the role of the hypothalamus in the release of anterior pituitary hormones.	1

HAPS Objective: J04.04 Explain the role of the hypothalamus in the production and release of posterior pituitary hormones.	1
HAPS Objective: J05.01a Describe the stimulus for release of growth hormone, thyroid-stimulating hormone, luteinizing hormone, follicle stimulating hormone, prolactin, adrenocorticotropic hormone, oxytocin, and antidiuretic hormone (or vasopressin).	1
HAPS Objective: J05.01b Identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce growth hormone, thyroid-stimulating hormone, luteinizing hormone, follicle stimulating hormone, prolactin, adrenocorticotropic hormone, oxytocin, and antidiuretic hormone (or vasopressin).	1
HAPS Objective: J05.01c Name the target tissue or cells for the hormone and describe the effect(s) of the hormone on the target tissue or cells of growth hormone, thyroid-stimulating hormone, luteinizing hormone, follicle stimulating hormone, prolactin, adrenocorticotropic hormone, oxytocin, and antidiuretic hormone (or vasopressin.	1
HAPS Objective: J05.01d Predict the larger effect that fluctuations in the hormone level will have on conditions (variables) within the body for growth hormone, thyroid-stimulating hormone, luteinizing hormone, follicle stimulating hormone, prolactin, adrenocorticotropic hormone, oxytocin, and antidiuretic hormone (or vasopressin).	1
HAPS Objective: J05.02a In the thyroid gland, describe the stimulus for release of the hormones thyroxine, triiodothyronine, calcitonin.	1
HAPS Objective: J05.02b In the thyroid gland, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce the hormones thyroxine, triiodothyronine, calcitonin.	1
HAPS Objective: J05.02c In the thyroid gland, name the target tissue or cells for the hormone and describe the effect(s) of the hormone on the target tissue or cells from thyroxine, triiodothyronine, calcitonin.	1
HAPS Objective: J05.02d In the thyroid gland, predict the larger effect that fluctuations in the hormone level will have on conditions (variables) within the body for thyroxine, triiodothyronine, calcitonin.	1
HAPS Objective: J05.03a In the parathyroid gland, describe the stimulus for release of the parathyroid hormone.	1
HAPS Objective: J05.03b In the parathyroid gland, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce the parathyroid hormone.	1
HAPS Objective: J05.03c In the parathyroid gland, name the target tissue or cells for the hormone and describe the effect(s) of the parathyroid hormone on the target tissue or cells.	1
HAPS Objective: J05.03d In the parathyroid gland, predict the larger effect that fluctuations in the parathyroid hormone level will have on conditions (variables) within the body.	1
HAPS Objective: J05.04a In the adrenal gland, describe the stimulus for release of glucocorticoids (cortisol), mineralocorticoids (aldosterone), gonadocorticoids, epinephrine and norepinephrine.	1
HAPS Objective: J05.04b In the adrenal gland, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce glucocorticoids (cortisol), mineralocorticoids (aldosterone), gonadocorticoids, epinephrine and norepinephrine.	1
HAPS Objective: J05.04c In the adrenal gland, name the target tissue or cells for the hormone and describe the effect(s) of glucocorticoids (cortisol), mineralocorticoids (aldosterone), gonadocorticoids, epinephrine and norepinephrine on the target tissue or cells.	1
HAPS Objective: J05.04d In the adrenal gland, predict the larger effect that fluctuations in glucocorticoids (cortisol), mineralocorticoids (aldosterone), gonadocorticoids, epinephrine and norepinephrine levels will have on conditions (variables) within the body.	1
HAPS Objective: J05.05a In the testis, describe the stimulus for release of testosterone and inhibin.	1
HAPS Objective: J05.05b In the testis, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/organ that produce testosterone and inhibin.	1

HAPS Objective: J05.05c In the testis, name the target tissue or cells for testosterone and inhibin and describe the effect(s) of the hormone on the target tissue or cells.	1
HAPS Objective: J05.05d In the testis, predict the larger effect that fluctuations in testosterone and inhibin level will have on conditions (variables) within the body.	1
HAPS Objective: J05.06a In the ovary, describe the stimulus for release of estrogen, progesterone and inhibin.	1
HAPS Objective: J05.06b In the ovary, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/ organ that produce estrogen, progesterone and inhibin.	1
HAPS Objective: J05.06c In the ovary, name the target tissue or cells for estrogen, progesterone and inhibin and describe the effect(s) of the hormone on the target tissue or cells.	1
HAPS Objective: J05.06d In the ovary, predict the larger effect that fluctuations in estrogen, progesterone and inhibin levels will have on conditions (variables) within the body.	1
HAPS Objective: J05.07a In the pancreas, describe the stimulus for release of insulin and glucagon.	1
HAPS Objective: J05.07b In the pancreas, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/ organ that produce insulin and glucagon.	1
HAPS Objective: J05.07c In the pancreas, name the target tissue or cells for insulin and glucagon and describe the effect(s) of the hormone on the target tissue or cells.	1
HAPS Objective: J05.07d In the pancreas, predict the larger effect that fluctuations in insulin and glucagon levels will have on conditions (variables) within the body.	1
HAPS Objective: J05.08a In the kidney, describe the stimulus for release of erythropoietin and calcitrol (Vitamin D).	1
HAPS Objective: J05.08b In the kidney, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/ organ that produce erythropoietin and calcitrol (Vitamin D).	1
HAPS Objective: J05.08c In the kidney, name the target tissue or cells for erythropoietin and calcitrol (Vitamin D) and describe the effect(s) of the hormone on the target tissue or cells.	1
HAPS Objective: J05.08d In the kidney, predict the larger effect that fluctuations in erythropoietin and calcitrol (Vitamin D) levels will have on conditions (variables) within the body.	1
HAPS Objective: J05.09a In the thymus, describe the stimulus for release of thymosin.	1
HAPS Objective: J05.09b In the thymus, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/ organ that produce thymosin.	1
HAPS Objective: J05.09c In the thymus, name the target tissue or cells for thymosin and describe the effect(s) of the hormone on the target tissue or cells.	1
HAPS Objective: J05.09d In the thymus, predict the larger effect that fluctuations in thymosin will have on conditions (variables) within the body.	1
HAPS Objective: J05.10a In the heart, describe the stimulus for release of atrial natriuretic peptide.	1
HAPS Objective: J05.10b In the heart, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/ organ that produce atrial natriuretic peptide.	1
HAPS Objective: J05.10c In the heart, name the target tissue or cells for atrial natriuretic peptide and describe the effect(s) of the hormone on the target tissue or cells.	1
HAPS Objective: J05.10d In the heart, predict the larger effect that fluctuations in atrial natriuretic peptide will have on conditions (variables) within the body.	1
HAPS Objective: J05.11a: In the gastrointestinal tract, describe the stimulus for release of gastrin, secretin, cholecystokinin, motilin and gastric inhibiting peptide.	1
HAPS Objective: J05.11b In the gastrointestinal tract, identify the gland or endocrine tissue/organ and the cells within that gland/tissue/ organ that produce gastrin, secretin, cholecystokinin, motilin and gastric inhibiting peptide.	1

HAPS Objective: J05.11c In the gastrointestinal tract, name the targe t tissue or cells for gastrin, secretin, cholecystokinin, motilin and gast ric inhibiting peptide hormone and describe the effect(s) of the horm one on the target tissue or cells.	1
HAPS Objective: J05.11d In the gastrointestinal tract, predict the lar ger effect that fluctuations in gastrin, secretin, cholecystokinin, motil in, gastric inhibiting peptide levels will have on conditions (variables) within the body.	1
HAPS Objective: J05.12a: In adipose tissue, describe the stimulus fo r release of leptin and resistin.	1
HAPS Objective: J05.12b In adipose tissue, identify the gland or end ocrine tissue/organ and the cells within that gland/tissue/ organ that produce leptin and resistin.	1
HAPS Objective: J05.12c In adipose tissue, name the target tissue or cells for leptin and resistin and describe the effect(s) of the hormone on the target tissue or cells.	1
HAPS Objective: J05.12d In adipose tissue, predict the larger effect t hat fluctuations in leptin and resistin levels will have on conditions (variables) within the body.	1
HAPS Objective: J05.13a: In the placenta, describe the stimulus for r elease of estrogen, progesterone and human chorionic gonadotropin.	1
HAPS Objective: J05.13b In the placenta, identify the gland or endoc rine tissue/organ and the cells within that gland/tissue/ organ that produce estrogen, progesterone and human chorionic gona dotropin.	1
HAPS Objective: J05.13c In the placenta, name the target tissue or c ells for estrogen, progesterone and human chorionic gonadotropin an d describe the effect(s) of the hormone on the target tissue or cells.	1
HAPS Objective: J05.13d In the placenta, predict the larger effect th at fluctuations in estrogen, progesterone and human chorionic gonad otropin levels will have on conditions (variables) within the body.	1
HAPS Objective: J06.01 Define the terms paracrine and autocrine.	1
HAPS Objective: J06.02 List two major types of eicosanoids and dis cuss their production and functions.	1
HAPS Objective: J06.03 Discuss the production and function of gro wth factors.	1
HAPS Objective: J06.04 Justify whether or not paracrines, autocrine s and growth factors should be considered to be part of the endocrine system.	1
HAPS Objective: J07.01 Describe the three stages of the stress respo nse (general adaptation syndrome).	1
HAPS Objective: J07.02 List the hormones released during short- term stress and describe the hormonal actions.	1
HAPS Objective: J07.03 List the major hormones released during lo ng-term stress and describe the hormonal actions.	1
HAPS Objective: J08.01 Provide specific examples to demonstrate h ow the endocrine organs respond to maintain homeostasis in the bod y.	1
HAPS Objective: J08.02 Explain how the endocrine organs relate to other body organs and systems to maintain homeostasis.	1
HAPS Objective: J09.01 Predict factors or situations affecting the en docrine organs that could disrupt homeostasis.	1
HAPS Objective: J09.02 Predict the types of problems that would oc cur in the body if the various endocrine organs could not maintain ho meostasis.	1
HAPS Objective: Q01.01 List and describe the routes of water entry into the body and state representative volumes for each.	1
HAPS Objective: Q01.02 List and describe the routes of water loss fr om the body and state representative volumes for each.	1
HAPS Objective: Q01.03 Describe the mechanisms used to regulate water intake.	1
HAPS Objective: Q01.04 Describe the mechanisms used to regulate water output.	1
HAPS Objective: Q02.01 Describe the fluid compartments (includin g the subdivisions of the extracellular fluid) and state the relative vol umes of each.	1
HAPS Objective: Q03.01 Define electrolyte.	1

HAPS Objective: Q03.02 Compare and contrast the relative concentrations of major electrolytes in intracellular and extracellular fluids.	1
HAPS Objective: Q03.03 Describe the function(s) of each abundant electrolyte found in body fluids, including sodium, chloride, potassium, phosphate and calcium.	1
HAPS Objective: Q03.04 Describe hormonal regulation of electrolyte levels in the plasma, including sodium, chloride, potassium, phosphate and calcium.	1
HAPS Objective: Q04.01 Explain the role of electrolytes and non-electrolytes in the determination of osmotic pressure.	1
HAPS Objective: Q04.02 Describe the forces that affect capillary filtration, including the determinants of each force.	1
HAPS Objective: Q04.03 Compare and contrast the roles that osmosis and capillary filtration play in the movement of fluids between compartments.	1
HAPS Objective: Q04.04 Describe the role of “capillary permeability” in fluid movement across the capillary wall.	1
HAPS Objective: Q04.05 Explain how dehydration and overhydration (water intoxication) develop and how fluids shift between the three major body compartments during each.	1
HAPS Objective: Q05.01 Define acid, base, pH and buffer.	1
HAPS Objective: Q05.02 State the normal pH range for arterial blood.	1
HAPS Objective: Q05.03a State the chemical equation for bicarbonate buffer system, the phosphate buffer system and the protein buffer system.	1
HAPS Objective: Q05.03b Explain the role of the bicarbonate buffer system, the phosphate buffer system and the protein buffer system in regulation of blood, interstitial fluid, and intracellular pH, including how each system responds to increases or decreases in pH.	1
HAPS Objective: Q05.04 Explain the role of hemoglobin in pH buffering.	1
HAPS Objective: Q06.01 State the normal ranges for PCO2 and HCO3 in arterial blood and summarize their relationship to blood pH.	1
HAPS Objective: Q06.02 Describe the role of the respiratory system in regulation of blood pH and predict how hypo- and hyperventilation will affect blood pH.	1
HAPS Objective: Q06.03 Explain the mechanisms by which the kidneys secrete hydrogen ions, and how this process affects blood pH.	1
HAPS Objective: Q06.04 Explain the mechanisms by which the kidneys retain bicarbonate ions, and how this process affects blood pH.	1
HAPS Objective: Q06.05 Discuss the concept of compensation to correct respiratory and metabolic acidosis and alkalosis.	1
HAPS Objective: Q06.06 Given appropriate arterial blood gas values, determine whether a patient has normal blood pH or is in respiratory acidosis or alkalosis or is in metabolic acidosis or alkalosis, and whether the acidosis/ alkalosis is partially or fully compensated or uncompensated.	1
HAPS Objective: Q07.01 Provide specific examples to demonstrate how the cardiovascular, endocrine, and urinary systems respond to maintain homeostasis of fluid volume in the body.	1
HAPS Objective: Q07.02 Provide specific examples to demonstrate how the cardiovascular, endocrine, respiratory, and urinary systems respond to maintain homeostasis of electrolyte concentrations and pH of body fluids.	1
HAPS Objective: Q07.03 Explain how fluid volumes and distribution contribute to the maintenance of homeostasis in other body systems.	1
HAPS Objective: Q07.04 Explain how electrolyte concentrations and body fluid pH contribute to the maintenance of homeostasis in other body systems.	1
HAPS Objective: Q08.01 Predict factors or situations that would lead to a disruption of homeostasis by affecting the volume or composition of body fluids.	1
HAPS Objective: Q08.02 Predict factors or situations that would lead to a disruption of homeostasis by causing respiratory acidosis, respiratory alkalosis, metabolic acidosis, or metabolic alkalosis.	1

HAPS Objective: Q08.03 Predict the types of problems that would occur in the body if the volume and composition of body fluids were not maintained within normal homeostatic ranges.	1
HAPS Objective: Q08.04 Predict the types of problems that would occur in the body if body fluid pH were not maintained within the normal homeostatic range.	1
HAPS Topic: Module A01 Anatomical position.	1
HAPS Topic: Module A02 Body planes and sections.	1
HAPS Topic: Module A03 Body cavities and regions.	1
HAPS Topic: Module A04 Directional terms.	1
HAPS Topic: Module A05 Basic terminology.	1
HAPS Topic: Module A06 Levels of organization.	1
HAPS Topic: Module A07 Survey of body systems.	1
HAPS Topic: Module B01 Definition.	1
HAPS Topic: Module B02 General types of homeostatic mechanisms.	1
HAPS Topic: Module B03 Examples of homeostatic mechanisms.	1
HAPS Topic: Module B04 Application of homeostatic mechanisms.	1
HAPS Topic: Module B05 Predictions related to homeostatic imbalance, including disease states and disorders.	1
HAPS Topic: Module J01 General functions of the endocrine system.	1
HAPS Topic: Module J02 Chemical classification of hormones and mechanism of hormone actions at receptors.	1
HAPS Topic: Module J03 Control of hormone secretion.	1
HAPS Topic: Module J04 Control by the hypothalamus and pituitary gland.	1
HAPS Topic: Module J05 Identity, source, secretory control, and functional roles of the major hormones produced by the body.	1
HAPS Topic: Module J06 Local hormones (paracrines and autocrines) and growth factors.	1
HAPS Topic: Module J07 Hormonal response to stress.	1
HAPS Topic: Module J08 Application of homeostatic mechanisms.	1
HAPS Topic: Module J09 Predictions related to homeostatic imbalance, including disease states and disorders.	1
HAPS Topic: Module Q01 Regulation of water intake and output.	1
HAPS Topic: Module Q02 Description of the major fluid compartments.	1
HAPS Topic: Module Q03 Chemical composition of the major compartment fluids.	1
HAPS Topic: Module Q04 Movements between the major fluid compartments.	1
HAPS Topic: Module Q05 Buffer systems and their roles in acid/base balance.	1
HAPS Topic: Module Q06 Role of the respiratory and urinary systems in acid/base balance.	1
HAPS Topic: Module Q07 Application of homeostatic mechanisms.	1
HAPS Topic: Module Q08 Predictions related to homeostatic imbalance, including disease states and disorders.	1
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