TEST BANK

Principles of Human Physiology

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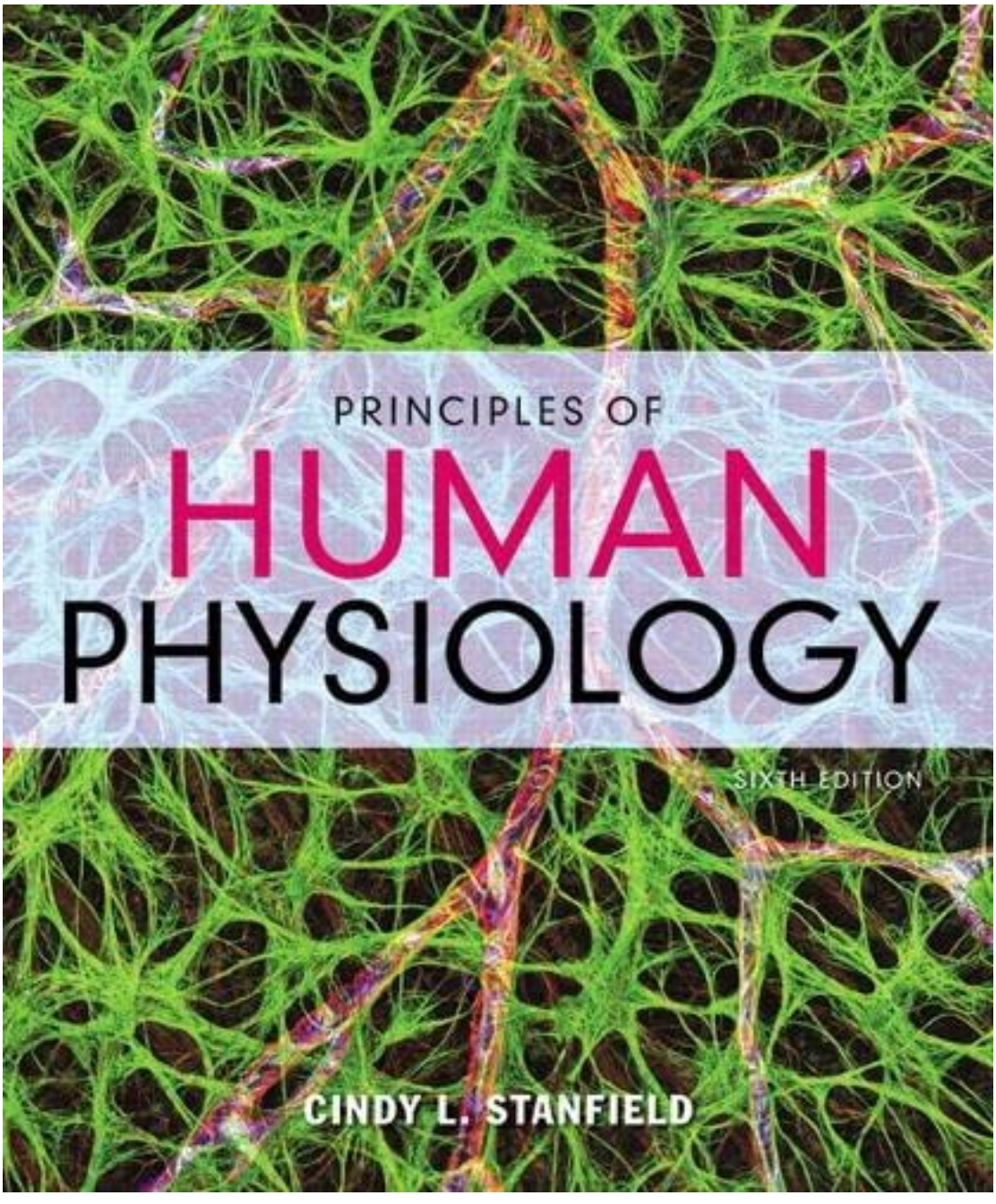
6th Edition



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Principles of Human Physiology, 6e **(Stanfield)**
Chapter 1 Introduction to Physiology

1.1 Multiple Choice Questions

1) The smallest living units capable of carrying out their own basic life functions are called
A) organs.
B) organ systems.
C) tissues.
D) cells.
E) organelles.
Answer: D
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

2) Cells are classified into which of the following four broad categories?
A) squamous, cubodial, columnar, and basement membranes
B) skeletal, cardiac, endocrine, and nervous
C) neurons, muscle, epithelial, and connective tissue
D) atoms, tissues, organs, and organ systems
E) endocrine, nervous, integumentary, and reproductive
Answer: C
Learning Outcome: 1.1
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

3) Epithelial cells are associated with a noncellular material called a(n)
A) fibroblast.
B) connective tissue.
C) endocrine gland.
D) basement membrane.
E) muscle fiber.
Answer: D
Learning Outcome: 1.1
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

4) _____ are found in the linings of hollow organs where they separate fluids in the interior cavity from the surrounding body fluids. The interior cavity of a hollow organ or vessel is known as a _____.
A) Endocrine cells : lumen
B) Smooth muscle cells : cavity
C) Epithelial : lumen
D) Connective tissues : basement membran
E) Elastin cells : cavity
Answer: C
Learning Outcome: 1.1
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

5) The tissue type that generates mechanical force and movement, and whose activity is controlled both on a voluntary and involuntary level, is _____ tissue.
A) muscle
B) epithelial
C) connective
D) nervous
E) skeletal
Answer: A
Learning Outcome: 1.1
HAPS LO: HAPS-1|2
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

6) Glands are derived from what type of tissue?
A) muscle
B) connective
C) epithelial
D) nerve
E) reticular
Answer: C
Learning Outcome: 1.1
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

7) The cell types blood, bone, fat, and lymph would be categorized into which of the following major cell classes?
A) neurons
B) muscle cells
C) epithelial cells
D) connective tissue cells
E) endocrine cells
Answer: D
Learning Outcome: 1.1
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

8) Which tissue type includes cells contained in an extracellular matrix composed of collagen and elastin?
A) muscle tissue
B) epithelial tissue
C) connective tissue
D) nervous tissue
E) endocrine tissue
Answer: C
Learning Outcome: 1.1
HAPS LO: HAPS-1|2
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

9) What is a general name for the noncellular material that holds the widely scattered cells of connective tissue together?
A) basement membrane
B) collagen
C) intracellular matrix
D) extracellular matrix
E) elastin
Answer: D
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

10) Which of the following is a protein found in connective tissue that provides the tensile strength to resist stretching?
A) collagen
B) elastin
C) erythropoietin
D) basement membrane
E) vimentin
Answer: A
Learning Outcome: 1.1
HAPS LO: HAPS-2
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

11) What are the structures that attach bone to muscle?
A) ligaments
B) aponeuroses
C) extracellular matrix proteins
D) tendons
E) intracellular matrix proteins
Answer: D
Learning Outcome: 1.1
HAPS LO: HAPS-2
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

12) Organs of the body are defined as
A) a collection of cells that perform similar functions.
B) two or more tissues combined to form a structure that allows each tissue to function independently.
C) a collection of cells that function independently of one another.
D) a combination of two or more tissues that make up a structure which performs a specific function.
E) a collection of tissues that function independently of one another.
Answer: D
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

13) Which of the following accurately represents the order of complexity for the components of the body, from least to most complex?
A) organ systems, cells, tissues, organs
B) tissues, cells, organs, organ systems
C) cells, tissues, organs, organ systems
D) cells, tissues, organ systems, organs
E) organ systems, organs, tissues, cells
Answer: C
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

14) The uptake of nutrients across the epithelial cells of the gastrointestinal tract and into the bloodstream is called
A) filtration.
B) excretion.
C) secretion.
D) absorption.
E) reabsorption.
Answer: D
Learning Outcome: 1.2
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

15) What organ system includes the pituitary gland, adrenal gland, and thyroid gland?
A) nervous
B) endocrine
C) cardiovascular
D) integumentary
E) immune
Answer: B
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

16) The lumen of which of the following systems is part of the internal environment?
A) gastrointestinal system
B) respiratory system
C) cardiovascular system
D) urinary system
E) gastrointestinal and urinary systems
Answer: C
Learning Outcome: 1.2
HAPS LO: HAPS-2
Bloom's Taxonomy: Comprehension
Chapter Section: 1.1

17) The process whereby fluid from the bloodstream enters the tubules of the kidneys is called
A) filtration.
B) excretion.
C) secretion.
D) absorption.
E) reabsorption.
Answer: A
HAPS LO: HAPS-1
Bloom's Taxonomy: Comprehension
Chapter Section: 1.1

18) The process whereby fluid in the kidneys is transported from the tubules back into the bloodstream is called
A) filtration.
B) excretion.
C) secretion.
D) absorption.
E) reabsorption.
Answer: E
HAPS LO: HAPS-1
Bloom's Taxonomy: Comprehension
Chapter Section: 1.1

19) Referring to a membrane as "selectively permeable" describes its ability to
A) allow the movement of particular molecules across a membrane.
B) restrict only the movement of sodium across a membrane.
C) provide a barrier that restricts the movement of all molecules across a membrane.
D) provide a minimal barrier that allows almost any molecule to move across a membrane.
E) restrict only the movement of potassium across the membrane.
Answer: A
HAPS LO: HAPS-2
Bloom's Taxonomy: Comprehension
Chapter Section: 1.1

20) Extracellular fluid is composed of
A) interstitial fluid and plasma.
B) plasma and intracellular fluid.
C) interstitial fluid only.
D) plasma only.
E) intracellular fluid only.
Answer: A
Learning Outcome: 1.2
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

21) Total body water is composed of
A) intracellular fluid only.
B) extracellular fluid only.
C) intracellular and interstitial fluid.
D) intracellular and extracellular fluid.
E) plasma and intracellular fluid.
Answer: D
Learning Outcome: 1.2
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

22) Where is most of our total body water located?
A) in the lumen of the kidneys
B) in the lumen of the gastrointestinal tract
C) in blood
D) inside cells
E) surrounding the cells
Answer: D
Learning Outcome: 1.2
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

23) Which of the following compartments contain most of the water found in the human body?
A) intracellular fluid
B) plasma
C) interstitial fluid
D) extracellular fluid
E) lumen of the intestinal tract
Answer: A
Learning Outcome: 1.2
HAPS LO: HAPS-2
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

24) What are the two extracellular fluid compartments of the body?
A) intracellular fluid and interstitial fluid
B) intracellular fluid and plasma
C) intracellular fluid and blood
D) interstitial fluid and plasma
E) interstitial fluid and blood
Answer: D
Learning Outcome: 1.2
HAPS LO: HAPS-2
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

25) The portion of body water outside of cells that bathes most cells of the body is called

A) intracellular fluid.
B) intercellular fluid.
C) interstitial fluid.
D) plasma.
E) extracellular fluid.
Answer: C
Learning Outcome: 1.2
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

26) The fluid compartment with a high sodium and protein concentration is called
A) interstitial fluid.
B) plasma.
C) intracellular fluid.
D) extracellular fluid.
E) intracellular and extracellular fluids.
Answer: B
Learning Outcome: 1.2
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

27) Which of the following best describes intracellular fluid?
A) rich in sodium, potassium, and chloride
B) rich in sodium and chloride
C) rich in proteins and chloride
D) rich in proteins and potassium
E) rich in potassium and chloride
Answer: D
Learning Outcome: 1.2
HAPS LO: HAPS-1
Bloom's Taxonomy: Comprehension
Chapter Section: 1.1

28) The fluid compartment with a high sodium concentration that contains only trace amounts of protein is called
A) interstitial fluid.
B) plasma.
C) intracellular fluid.
D) extracellular fluid.
E) intracellular and extracellular fluids.
Answer: A
Learning Outcome: 1.2
HAPS LO: HAPS-1
Bloom's Taxonomy: Comprehension
Chapter Section: 1.1

29) For a person weighing 150 pounds, how many liters of water are contained in all of the body's compartments?
A) 70
B) 50
C) 42
D) 14
E) 11
Answer: C
Learning Outcome: 1.2
Bloom's Taxonomy: Knowledge
Chapter Section: 1.1

30) Homeostasis is a term which describes the process whereby the body
A) affects the external environment.
B) maintains a constant external environment.
C) maintains a constant internal environment.
D) maintains a variable internal environment.
E) maintains a constant internal and external environment.
Answer: C
Learning Outcome: 1.3
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.2

31) Of the following conditions associated with excess heat, which is the most serious condition?
A) heat exhaustion
B) heat stroke
C) excessive sweating
D) dehydration
E) dizziness
Answer: B
Bloom's Taxonomy: Knowledge
Chapter Section: 1.2

32) The maintenance of a stable internal environment compatible for life is called

A) physiology.
B) anatomy.
C) biochemistry.
D) microbiology.
E) homeostasis.
Answer: E
Learning Outcome: 1.3
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.2

33) What is the primary mechanism for maintaining homeostasis?
A) positive feedback
B) negative feedback
C) intrinsic control
D) extrinsic control
E) inherent control
Answer: B
Learning Outcome: 1.4
HAPS LO: HAPS-3
Bloom's Taxonomy: Knowledge
Chapter Section: 1.2

34) Which of the following statements about homeostasis is FALSE?
A) The extracellular fluid is maintained in a state compatible for life.
B) The primary mechanism to maintain homeostasis is positive feedback.
C) The organ systems work together to maintain homeostasis.
D) Illness can result if homeostasis is disrupted.
E) Homeostasis is the maintenance of the internal environment.
Answer: B
Learning Outcome: 1.3
HAPS LO: HAPS-3
Bloom's Taxonomy: Knowledge
Chapter Section: 1.2

35) Changes in the external environment alter the _____, which is detected by the _____, and that information is sent to the integrator.
A) set point : regulated variable
B) regulated variable : set point
C) error signal : regulated variable
D) sensor : regulated variable
E) regulated variable : sensor
Answer: E
Learning Outcome: 1.3
HAPS LO: HAPS-3
Bloom's Taxonomy: Knowledge
Chapter Section: 1.2

36) Lisinopril is a medication that lowers high blood pressure back to within a desired range of function. The action of this medication is similar to that of a(n) _____ in the human body.
A) set point
B) regulated variable
C) negative feedback response
D) positive feedback response
E) integrating center
Answer: C
Learning Outcome: 1.4
HAPS LO: HAPS-3
Bloom's Taxonomy: Comprehension
Chapter Section: 1.2

37) If you were to take the temperature of everyone in class, assuming no one is sick, you would find that not everyone has a temperature of 98.6°F. Which statement below best explains your findings?
A) The measuring instrument is not working properly; everyone has a set point of 98.6°F.
B) Most regulated variables, such as temperature, fluctuate continuously and oscillate about the set point due to negative feedback control.
C) If the subject is not at 98.6°F then he or she is in a disease state
D) An error signal has occurred and a positive feedback response has put the persons in question out of the normal range of function.
E) Their temperature is no doubt higher than 98.6°F because a positive feedback loop has increased the subjects' metabolism.
Answer: B
Learning Outcome: 1.3|1.4
HAPS LO: HAPS-3
Bloom's Taxonomy: Comprehension
Chapter Section: 1.2

38) When people cut themselves, they have clotting factors in their blood that will be released continuously in a cascade until their blood clots and terminates the bleeding. What mechanism caused their blood to clot?
A) positive feedback control
B) negative feedback control
C) homeostasis
D) secretion
E) reabsorption
Answer: A
Learning Outcome: 1.3
HAPS LO: HAPS-3
Bloom's Taxonomy: Application
Chapter Section: 1.2

39) A _____ detects a change in a regulated variable and sends that information to a(n) _____ which relays signals to a(n) _____, usually a muscle or a gland.
A) sensor : integrating center : effector
B) sensor : effector : integrating center
C) stimulus : receptor : organ system
D) receptor : stimulus : regulated variable
E) receptor : integrating center : negative feedback control
Answer: A
Learning Outcome: 1.3
HAPS LO: HAPS-3
Bloom's Taxonomy: Knowledge
Chapter Section: 1.2

40) Vinnie has high blood glucose and must take insulin shots to control his blood sugar. Why must he override his normal homeostatic mechanisms by taking medication?
A) Vinnie's positive feedback controls are not functioning properly.
B) Vinnie's negative feedback controls are not functioning properly.
C) An error signal has been sent to Vinnie's integrating center, which is not functioning properly.
D) Vinnie's set point has changed telling him he needs more sugar.
E) Vinnie's sensors are detecting high levels of glucose and therefore are not secreting insulin due to positive feedback control.
Answer: B
HAPS LO: HAPS-6
Bloom's Taxonomy: Application
Chapter Section: 1.2

41) A patient has a high salt or sodium intake which draws fluid out of his cells to dilute the sodium. This process occurs as a result of
A) positive feedback control.
B) negative feedback control.
C) excretion.
D) reabsorption.
E) absorption.
Answer: B
Learning Outcome: 1.4
HAPS LO: HAPS-3
Bloom's Taxonomy: Comprehension
Chapter Section: 1.2

42) The process of maintaining the internal environment in a state compatible for life is called _____, and it occurs primarily through _____.
A) intrinsic control : homeostasis
B) negative feedback : intrinsic control
C) homeostasis : negative feedback
D) intrinsic control : negative feedback
E) positive feedback : intrinsic control
Answer: C
Learning Outcome: 1.3|1.4
HAPS LO: HAPS-3
Bloom's Taxonomy: Knowledge
Chapter Section: 1.2

43) Which of the following is an example of negative feedback?
A) If blood pressure increases above normal, baroreceptors in major arteries detect the change and send signals to the brain. Certain areas of the brain then send signals to the nerves that control the heart and blood vessels to make the heart beat slower and the blood vessels increase in diameter, which in turn reduce the blood pressure.
B) During a blood clot, platelets release ADP, which stimulates platelet aggregation, causing platelets to release more ADP.
C) During an infection, the body temperature set point is increased. The hypothalamus communicates to skeletal muscles to shiver and to blood vessels to decrease blood flow to the skin, causing a rise in body temperature.
D) At the time of birth, uterine contractions push the baby toward the cervix. Receptors in the cervix detect the pressure caused by the baby and cause the release of a hormone called oxytocin. This hormone stimulates stronger uterine contractions, which push more on the baby, causing an increase in pressure and another increase in oxytocin. The cycle continues until the baby is delivered from the mother.
E) Consumption of caffeine increases urine output, causing dehydration.
Answer: A
Learning Outcome: 1.5
HAPS LO: HAPS-3
Bloom's Taxonomy: Comprehension
Chapter Section: 1.2

44) Luteinizing hormone-mediated regulation of estrogen during ovulation in women is an example of
A) a negative feedback loop.
B) a positive feedback loop.
C) a quasi-negative feedback loop.
D) a quasi-positive feedback loop.
E) both a positive and a negative feedback loop.
Answer: B
Learning Outcome: 1.5
HAPS LO: HAPS-3
Bloom's Taxonomy: Knowledge
Chapter Section: 1.2

45) The feedback loop involving luteinizing hormone and estrogen is terminated by
A) nothing; the cycle cannot be terminated.
B) ovulation, which decreases estrogen secretion.
C) pregnancy.
D) birth.
E) ovulation, which directly inhibits luteinizing hormone secretion.
Answer: B
Learning Outcome: 1.5
HAPS LO: HAPS-3
Bloom's Taxonomy: Comprehension
Chapter Section: 1.2

46) Which of the following is a normal blood glucose level?
A) 100 mg/dL
B) 100 gm/mL
C) 50 mg/dL
D) 50 mmolar
E) 200 mmolar
Answer: A
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.3

47) What is the difference between diabetes mellitus and diabetes insipidus?
A) One is a deficit in insulin activity; the other a deficit in ADH activity.
B) One is a lack of insulin secretion; the other a resistance to insulin.
C) One is a lack of ADH secretion; the other a resistance to ADH.
D) One causes increased fluid loss; the other causes increased thirst.
E) One causes diarrhea; the other causes diuresis.
Answer: A
HAPS LO: HAPS-1
Bloom's Taxonomy: Knowledge
Chapter Section: 1.3

48) What cells secrete insulin?