

***Fundamentals of Anatomy and Physiology, 11e (Martini)***  
**Chapter 1 An Introduction to Anatomy and Physiology**

Multiple Choice Questions

1) Anatomy is to \_\_\_\_\_ as physiology is to \_\_\_\_\_.

- A) function; form
- B) form; structure
- C) structure; function
- D) structure; form
- E) growth; form

Answer: C

Learning Outcome: 1-2

Bloom's Taxonomy: Understanding

2) The analysis of the internal structure of individual cells is called

- A) cytology.
- B) histology.
- C) embryology.
- D) physiology.
- E) anatomy.

Answer: A

Learning Outcome: 1-2

Bloom's Taxonomy: Remembering

3) The study of the general form and superficial markings of an organism is called \_\_\_\_\_ anatomy.

- A) gross
- B) surface
- C) systemic
- D) regional
- E) surgical

Answer: B

Learning Outcome: 1-2

Bloom's Taxonomy: Remembering

4) Anatomical features that change during illness are studied in \_\_\_\_\_ anatomy.

- A) gross
- B) surface
- C) microscopic
- D) pathological
- E) regional

Answer: D

Learning Outcome: 1-2

Bloom's Taxonomy: Remembering

5) The study of the first two months of development is termed

- A) histology.
- B) embryology.
- C) cytology.
- D) pathology.
- E) organology.

Answer: B

Learning Outcome: 1-2

Bloom's Taxonomy: Remembering

6) The study of the function of specific organ systems is called

- A) systemic physiology.
- B) organ physiology.
- C) cell physiology.
- D) pathological physiology.
- E) histology.

Answer: A

Learning Outcome: 1-2

Bloom's Taxonomy: Remembering

7) Cardiovascular function is an example of

- A) histophysiology.
- B) organ physiology.
- C) systemic physiology.
- D) pathological physiology.
- E) physiological chemistry.

Answer: C

Learning Outcome: 1-2

Bloom's Taxonomy: Remembering

8) The study of the liver is to gross anatomy as the study of a liver cell is to

- A) physiology.
- B) regional anatomy.
- C) cytology.
- D) systemic anatomy.
- E) radiographic anatomy.

Answer: C

Learning Outcome: 1-2

Bloom's Taxonomy: Remembering

9) Identify the branch of biological science that studies the external and internal structure of the body and the physical relationship among body parts.

- A) genetics
- B) physiology
- C) embryology
- D) anatomy
- E) cytology

Answer: D

Learning Outcome: 1-2

Bloom's Taxonomy: Remembering

10) Identify the branch of biological science that deals with the study of how living organisms perform their vital functions.

- A) genetics
- B) physiology
- C) embryology
- D) anatomy
- E) cytology

Answer: B

Learning Outcome: 1-2

Bloom's Taxonomy: Remembering

11) The study of the changes in form that occur between conception and physical maturity is called \_\_\_\_\_ anatomy.

- A) developmental
- B) clinical
- C) systemic
- D) embryological
- E) physiological

Answer: A

Learning Outcome: 1-3

Bloom's Taxonomy: Remembering

12) The study of the anatomical organization of specific areas of the body is called \_\_\_\_\_ anatomy.

- A) gross
- B) surface
- C) systemic
- D) regional
- E) clinical

Answer: D

Learning Outcome: 1-2

Bloom's Taxonomy: Remembering

13) The study of the relationships of the body's structures by examining cross sections of tissues or organs is called \_\_\_\_\_ anatomy.

- A) gross
- B) surface
- C) systemic
- D) regional
- E) sectional

Answer: E

Learning Outcome: 1-2

Bloom's Taxonomy: Remembering

14) Which of the following is arranged in correct order from the most **complex** to the **simplest**?

- A) cellular, tissue, molecular, system, organ, organism
- B) molecular, cellular, tissue, organ, system, organism
- C) tissue, cellular, molecular, organ, system, organism
- D) organ, organism, molecular, cellular, tissue, system
- E) organism, system, organ, tissue, cellular, molecular

Answer: E

Learning Outcome: 1-3

Bloom's Taxonomy: Analyzing

15) Which organ system provides support, protection of soft tissue, mineral storage, and blood formation?

- A) integumentary
- B) muscular
- C) skeletal
- D) nervous
- E) endocrine

Answer: C

Learning Outcome: 1-3

Bloom's Taxonomy: Remembering

16) Which organ system transports nutrients, metabolic wastes, gases, and defense cells?

- A) cardiovascular
- B) digestive
- C) muscular
- D) respiratory
- E) urinary

Answer: A

Learning Outcome: 1-3

Bloom's Taxonomy: Remembering

17) Which organ system includes the spleen and the tonsils?

- A) digestive
- B) endocrine
- C) nervous
- D) cardiovascular
- E) lymphatic

Answer: E

Learning Outcome: 1-3

Bloom's Taxonomy: Remembering

18) The kidneys and ureters are organs of the \_\_\_\_\_ system.

- A) endocrine
- B) digestive
- C) respiratory
- D) urinary
- E) lymphatic

Answer: D

Learning Outcome: 1-3

Bloom's Taxonomy: Remembering

19) The pituitary gland and thyroid gland are organs of the \_\_\_\_\_ system.

- A) endocrine
- B) cardiovascular
- C) respiratory
- D) lymphatic
- E) digestive

Answer: A

Learning Outcome: 1-3

Bloom's Taxonomy: Remembering

20) Which organ system removes carbon dioxide from the bloodstream?

- A) cardiovascular
- B) lymphatic
- C) respiratory
- D) digestive
- E) endocrine

Answer: C

Learning Outcome: 1-3

Bloom's Taxonomy: Remembering

21) Lungs are to the respiratory system as the liver is to the \_\_\_\_\_ system.

- A) lymphatic
- B) urinary
- C) digestive
- D) cardiovascular
- E) nervous

Answer: C

Learning Outcome: 1-3

Bloom's Taxonomy: Understanding

22) Skin, hair, and nails are associated with the \_\_\_\_\_ system.

- A) skeletal
- B) muscular
- C) integumentary
- D) endocrine
- E) immune

Answer: C

Learning Outcome: 1-3

Bloom's Taxonomy: Remembering

23) A chemical imbalance in the body can cause the heart to stop pumping blood, which in turn will cause other tissues and organs to cease functioning. This observation supports the view that

- A) all organisms are composed of cells.
- B) all levels of organization within an organism are interdependent.
- C) chemical molecules make up cells.
- D) blood has magical properties.
- E) congenital defects can be life-threatening.

Answer: B

Learning Outcome: 1-3

Bloom's Taxonomy: Applying

24) In general, the nervous system does each of the following **except**

- A) help to maintain homeostasis.
- B) respond rapidly to change.
- C) direct long-term responses to change.
- D) direct very specific responses.
- E) interpret sensory information.

Answer: C

Learning Outcome: 1-3

Bloom's Taxonomy: Understanding

25) Which one of the following is **not** a characteristic of the endocrine system?

- A) releases chemical messengers called hormones
- B) produces a more rapid response than the nervous system
- C) produces effects that last for days or longer
- D) produces an effect that involves several organs or tissues at the same time
- E) important homeostatic system

Answer: B

Learning Outcome: 1-3

Bloom's Taxonomy: Understanding

26) Systemic physiology is

- A) the study of the effects of diseases on system functions.
- B) the study of the function of specific organs.
- C) the study of the functional chemistry of cells.
- D) the study of all aspects of the functioning of specific organs systems.
- E) the study of functions of the whole human body.

Answer: D

Learning Outcome: 1-3

Bloom's Taxonomy: Remembering

27) Anatomy uses a special language, called \_\_\_\_\_ terminology, which involves the use of word roots, prefixes, suffixes, and combining forms to construct terms related to the body in health and disease.

- A) clinical
- B) pathological
- C) medical
- D) anatomical
- E) surgical

Answer: C

Learning Outcome: 1-4

Bloom's Taxonomy: Remembering

28) \_\_\_\_\_ serves as a worldwide official standard of anatomical vocabulary.

- A) *Gray's Anatomy*
- B) *Terminologia Anatomica*
- C) *Hippocratic Corpus*
- D) *Anatomia Inteligencia*
- E) *De Materia Medica*

Answer: B

Learning Outcome: 1-4

Bloom's Taxonomy: Remembering

29) Many medical terms are rooted in

- A) Latin.
- B) German.
- C) Greek.
- D) Phoenician.
- E) Greek or Latin.

Answer: E

Learning Outcome: 1-4

Bloom's Taxonomy: Remembering

30) The quadrants of the abdominopelvic region include all of the following **except**

- A) right upper quadrant (RUQ).
- B) right lower quadrant (RLQ).
- C) left upper quadrant (LUQ).
- D) left lower quadrant (LLQ).
- E) pelvic quadrant.

Answer: E

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

31) Which of the following is **not** considered an abdominopelvic region?

- A) right hypochondriac
- B) right inguinal region
- C) left lumbar
- D) left hypochondriac
- E) upper

Answer: E

Learning Outcome: 1-5

Bloom's Taxonomy: Understanding

32) A person who is standing facing forward with hands at the sides and palms facing forward is in the \_\_\_\_\_ position.

- A) supine
- B) prone
- C) anatomical
- D) frontal
- E) sagittal

Answer: C

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering



33) An anatomical term that means the **same** as ventral is

- A) posterior.
- B) inferior.
- C) abdominal.
- D) anterior.
- E) superior.

Answer: D

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

34) The heart is \_\_\_\_\_ to the lungs.

- A) lateral
- B) medial
- C) posterior
- D) proximal
- E) distal

Answer: B

Learning Outcome: 1-5

Bloom's Taxonomy: Applying

35) The wrist is \_\_\_\_\_ to the elbow.

- A) proximal
- B) distal
- C) lateral
- D) medial
- E) horizontal

Answer: B

Learning Outcome: 1-5

Bloom's Taxonomy: Applying

36) The chin is \_\_\_\_\_ to the nose.

- A) anterior
- B) superior
- C) posterior
- D) inferior
- E) medial

Answer: D

Learning Outcome: 1-5

Bloom's Taxonomy: Applying

37) Which of the following regions corresponds to the buttocks?

- A) pelvic
- B) cephalic
- C) gluteal
- D) lumbar
- E) thoracic

Answer: C

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

38) Which of the following terms refers to the foot?

- A) cervical
- B) brachial
- C) antebrachial
- D) femoral
- E) pedal

Answer: E

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

39) Which plane divides the body into right and left parts?

- A) proximal
- B) frontal
- C) orthogonal
- D) transverse
- E) sagittal

Answer: E

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

40) A midsagittal section of the body would pass through the

- A) kidney.
- B) lung.
- C) heart.
- D) spleen.
- E) leg.

Answer: C

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

41) The plane that separates the abdominal and the pelvic cavities is

- A) the mediastinum.
- B) sagittal on the brachium.
- C) transverse at the hips.
- D) midsagittal on the trunk.
- E) superior to the thorax.

Answer: C

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

42) Terms of anatomical direction are used to describe

- A) one body part in relation to another.
- B) surgical procedures.
- C) a supine position.
- D) the nervous system.
- E) living matter.

Answer: A

Learning Outcome: 1-5

Bloom's Taxonomy: Applying

43) While standing erect, the direction of caudal is

- A) toward the head.
- B) toward the heel.
- C) lateral to the trunk.
- D) medial to the sides.
- E) posterior to the head.

Answer: B

Learning Outcome: 1-5

Bloom's Taxonomy: Applying

44) While standing in the anatomical position,

- A) front refers to anterior.
- B) front refers to ventral.
- C) back refers to posterior.
- D) back refers to dorsal.
- E) All of the answers are correct.

Answer: E

Learning Outcome: 1-5

Bloom's Taxonomy: Applying

45) The liver is primarily located in the \_\_\_\_\_ quadrant.

- A) right upper
- B) left upper
- C) right lower
- D) left lower
- E) hepatic

Answer: A

Learning Outcome: 1-5

Bloom's Taxonomy: Understanding

46) The urinary bladder is found in the \_\_\_\_\_ quadrant and the \_\_\_\_\_ quadrant.

- A) right upper; right lower
- B) left upper; left lower
- C) left upper; right upper
- D) right lower; left lower

Answer: D

Learning Outcome: 1-5

Bloom's Taxonomy: Understanding

47) A person lying face down is in the \_\_\_\_\_ position.

- A) anatomical
- B) prone
- C) supine
- D) ventral
- E) prostrate

Answer: B

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

48) A person lying on the bed and gazing at the ceiling is in the \_\_\_\_\_ position.

- A) prone
- B) supine
- C) anatomical
- D) dorsal
- E) caudal

Answer: B

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

49) The common term for the buccal region is the

- A) back.
- B) waist.
- C) breast.
- D) cheeks.
- E) buttocks.

Answer: D

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

50) The common term for the carpal region is the

- A) wrist.
- B) fingers.
- C) ankle.
- D) shin.
- E) chest.

Answer: A

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

51) The common name for the pollex is the

- A) ear lobe.
- B) belly.
- C) big toe.
- D) hand.
- E) thumb.

Answer: E

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

52) The common name for the patella is the

- A) forehead.
- B) knee.
- C) heel.
- D) palm of the hand.
- E) chin.

Answer: B

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

53) A cut parallel to the midsagittal plane would produce a(n) \_\_\_\_\_ section.

- A) frontal
- B) transverse
- C) oblique
- D) parasagittal
- E) coronal

Answer: D

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

54) The abdominopelvic region that is immediately superior to the umbilical region is the

- A) hypogastric region.
- B) left hypochondriac region.
- C) right inguinal region.
- D) epigastric region.
- E) left lumbar region.

Answer: D

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

55) The abdominopelvic region that is immediately superior to the hypogastric region is the

- A) umbilical region.
- B) left hypochondriac region.
- C) right inguinal region.
- D) epigastric region.
- E) left lumbar region.

Answer: A

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

56) The diaphragm muscle separates the \_\_\_\_\_ from the \_\_\_\_\_.

- A) pleural cavity; mediastinum
- B) thoracic cavity; abdominopelvic cavity
- C) pericardial cavity; pleural cavity
- D) abdominal cavity; pelvic cavity
- E) pericardial sac; pericardial cavity

Answer: B

Learning Outcome: 1-6

Bloom's Taxonomy: Remembering

57) The thoracic cavity contains the

- A) coelom.
- B) pericardial cavity.
- C) pelvic cavity.
- D) pleural cavities.
- E) pericardial and pleural cavities.

Answer: E

Learning Outcome: 1-6

Bloom's Taxonomy: Remembering

58) The serous membrane covering the stomach and most of the intestines is called the

- A) pericardium.
- B) peritoneum.
- C) pleura.
- D) mediastinum.
- E) abdomen.

Answer: B

Learning Outcome: 1-6

Bloom's Taxonomy: Remembering

59) Which of the following organs is described as retroperitoneal?

- A) stomach
- B) kidney
- C) urinary bladder
- D) large intestine
- E) spleen

Answer: B

Learning Outcome: 1-6

Bloom's Taxonomy: Remembering

60) The right pleural cavity contains

- A) the heart.
- B) the trachea.
- C) the left lung.
- D) the right lung.
- E) both lungs.

Answer: D

Learning Outcome: 1-6

Bloom's Taxonomy: Remembering

61) Visceral pericardium is located

- A) on the heart itself.
- B) lining the pleural cavity.
- C) lining the pericardial cavity.
- D) on the lung itself.
- E) lining the peritoneal cavity.

Answer: A

Learning Outcome: 1-6

Bloom's Taxonomy: Remembering

62) The mediastinum

- A) contains the pleural cavities.
- B) separates the pleural cavities.
- C) contains the pericardial cavity.
- D) contains the pleural cavities and pericardial cavity.
- E) separates the pleural cavities and includes the pericardial cavity.

Answer: E

Learning Outcome: 1-6

Bloom's Taxonomy: Remembering

63) Identify the structure located within the mediastinum.

- A) pericardial cavity
- B) small intestine
- C) lung
- D) spleen
- E) stomach

Answer: A

Learning Outcome: 1-6

Bloom's Taxonomy: Remembering

64) Which of the following imaging techniques is used to monitor blood flow through specific organs, such as the brain, heart, lungs, and kidneys?

- A) PET scan
- B) ultrasound
- C) digital subtraction angiography
- D) MRI
- E) CT scan

Answer: C

Learning Outcome: 1-6

Bloom's Taxonomy: Applying



65) The \_\_\_\_\_ is the membrane that covers the internal organs.

- A) parietal serosa
- B) visceral serosa
- C) mucous membrane
- D) cutaneous membrane
- E) serous membrane

Answer: B

Learning Outcome: 1-6

Bloom's Taxonomy: Remembering

66) The \_\_\_\_\_ is the membrane that covers the inner surface of cavity walls.

- A) parietal serosa
- B) visceral serosa
- C) mucous membrane
- D) cutaneous membrane
- E) serous membrane

Answer: A

Learning Outcome: 1-6

Bloom's Taxonomy: Remembering

67) Which of the following imaging techniques causes particles within atoms to line up in uniform direction allowing the imaging of soft tissue?

- A) PET scan
- B) ultrasound
- C) digital subtraction angiography
- D) MRI
- E) CT scan

Answer: D

Learning Outcome: 1-6

Bloom's Taxonomy: Applying

68) The imaging technique that assesses metabolic and physiological activity of a structure is called a

- A) PET scan.
- B) ultrasound.
- C) digital subtraction angiography.
- D) MRI.
- E) CT scan.

Answer: A

Learning Outcome: 1-6

Bloom's Taxonomy: Applying

69) The imaging technique that builds an image by using sound waves reflected by internal structures is called a

- A) PET scan.
- B) ultrasound.
- C) digital subtraction angiography.
- D) MRI.
- E) CT scan.

Answer: B

Learning Outcome: 1-6

Bloom's Taxonomy: Applying

70) The central principle of physiology is

- A) nutrition.
- B) reflexes.
- C) homeostasis.
- D) stimulation.
- E) temperature regulation.

Answer: C

Learning Outcome: 1-7

Bloom's Taxonomy: Remembering

71) The maintenance of a relatively constant internal environment in an organism is termed

- A) positive feedback.
- B) homeostasis.
- C) negative feedback.
- D) effector control.
- E) integration.

Answer: B

Learning Outcome: 1-7

Bloom's Taxonomy: Remembering

72) The tendency for physiological systems to stabilize internal conditions is called

- A) self-regulation.
- B) homeostasis.
- C) equilibriosis.
- D) hemopoiesis.
- E) amplification.

Answer: B

Learning Outcome: 1-7

Bloom's Taxonomy: Remembering

73) Homeostatic regulation usually involves a(n) \_\_\_\_\_ that detects a particular stimulus, and a(n) \_\_\_\_\_ that responds to the stimulus by communicating with a(n) \_\_\_\_\_ whose activity has an effect on the same stimulus.

- A) control center; effector; receptor
- B) receiver; communicator; effector
- C) receptor; control center; effector
- D) effector; receiver; communicator
- E) control center; receiver; effector

Answer: C

Learning Outcome: 1-7

Bloom's Taxonomy: Understanding

74) \_\_\_\_\_ results from the activities of the nervous or endocrine system.

- A) Self-regulation
- B) Automatic regulation
- C) Intrinsic regulation
- D) Extrinsic regulation
- E) Autoregulation

Answer: D

Learning Outcome: 1-7

Bloom's Taxonomy: Remembering

75) The process that occurs when a cell, tissue, organ, or organ system adjusts in response to some environmental change is

- A) negative feedback.
- B) positive feedback.
- C) homeostatic equilibrium.
- D) dynamic equilibrium.
- E) autoregulation.

Answer: E

Learning Outcome: 1-7

Bloom's Taxonomy: Remembering

76) When body temperature rises, a center in the brain initiates physiological changes to decrease the body temperature. This is an example of

- A) negative feedback.
- B) positive feedback.
- C) nonhomeostatic regulation.
- D) diagnostic regulation.
- E) fever.

Answer: A

Learning Outcome: 1-8

Bloom's Taxonomy: Understanding

77) A cell or an organ that responds to commands of the control center in negative feedback is termed a(n)

- A) receptor.
- B) thermoregulator.
- C) hypothalamus.
- D) effector.
- E) stimulus.

Answer: D

Learning Outcome: 1-8

Bloom's Taxonomy: Remembering

78) This type of feedback exaggerates the effects of variations from normal.

- A) negative
- B) positive
- C) neutral
- D) depressing
- E) All of the answers are correct.

Answer: B

Learning Outcome: 1-8

Bloom's Taxonomy: Remembering

79) If a response decreases a disturbance, the control system is classified as a \_\_\_\_\_ feedback system.

- A) deficit
- B) negative
- C) neutral
- D) polarized
- E) positive

Answer: B

Learning Outcome: 1-8

Bloom's Taxonomy: Understanding

80) If a response increases a disturbance, the control system is classified as a \_\_\_\_\_ feedback system.

- A) deficit
- B) negative
- C) neutral
- D) polarized
- E) positive

Answer: E

Learning Outcome: 1-8

Bloom's Taxonomy: Understanding

- 81) An example of a receptor in a negative feedback loop controlling body temperature would be
- A) temperature sensors on the skin that detect a stimulus.
  - B) sweat glands that increase secretion.
  - C) regulatory centers that send commands to an effector.
  - D) effectors that cause blood vessels to dilate.
  - E) sweat glands that act like effectors.

Answer: A

Learning Outcome: 1-8

Bloom's Taxonomy: Understanding

- 82) The integrating center for the negative feedback loop that regulates body temperature is the
- A) hypothalamus.
  - B) skin.
  - C) temperature sensor.
  - D) positive feedback center.
  - E) thermostat.

Answer: A

Learning Outcome: 1-8

Bloom's Taxonomy: Remembering

- 83) Disease is an indicator of
- A) negative feedback.
  - B) signs and symptoms.
  - C) homeostatic failure.
  - D) positive feedback.
  - E) All of the answers are correct.

Answer: C

Learning Outcome: 1-8

Bloom's Taxonomy: Remembering

- 84) In \_\_\_\_\_ a stimulus produces a response that opposes or negates the original stimulus.
- A) negative feedback
  - B) positive feedback
  - C) homeostatic equilibrium
  - D) dynamic equilibrium
  - E) homeostasis

Answer: A

Learning Outcome: 1-8

Bloom's Taxonomy: Understanding

85) In \_\_\_\_\_ a stimulus produces a response that amplifies or enhances the original stimulus.

- A) negative feedback
- B) positive feedback
- C) homeostatic equilibrium
- D) dynamic equilibrium
- E) homeostasis

Answer: B

Learning Outcome: 1-8

Bloom's Taxonomy: Understanding

#### In-Text Figure Based Questions

1) Are the following anatomical landmarks visible from the anterior or posterior view: dorsal, gluteal, calcaneal? (Figure 1-3)

- A) anterior
- B) posterior

Answer: B

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

2) In which abdominopelvic quadrant and region is the stomach predominantly found? (Figure 1-4)

- A) right upper quadrant and epigastric region
- B) left lower quadrant and umbilical region
- C) left upper quadrant and epigastric region
- D) right lower quadrant and umbilical region
- E) left lower quadrant and hypochondriac region

Answer: C

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

3) Using directional references for a person in anatomical position, how would you describe the relationship of the hand compared to the elbow? To the groin? (Figure 1-5)

- A) proximal; medial
- B) proximal; posterior
- C) proximal; lateral
- D) distal; medial
- E) distal; lateral

Answer: E

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

4) Which plane separates the body into superior and inferior portions? Which plane separates the body into anterior and posterior portions? (Figure 1-6)

- A) transverse/horizontal; sagittal
- B) sagittal; transverse/horizontal
- C) frontal/coronal; sagittal
- D) transverse/horizontal; frontal/coronal
- E) frontal/coronal; transverse/horizontal

Answer: D

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

5) If a person's body temperature gets too high, the body will respond by decreasing its temperature to restore homeostasis. What are some of the body's homeostatic responses to decrease body temperature? (Figure 1-9)

- A) blood vessels constrict, sweating increases
- B) blood vessels are not affected but sweating decreases
- C) blood vessels dilate, sweating increases
- D) shivering increases
- E) sweating decreases, shivering increases

Answer: C

Learning Outcome: 1-8

Bloom's Taxonomy: Understanding

### Essay Questions

1) What is homeostatic regulation, and what is its physiological importance?

Answer: Homeostatic regulation refers to adjustments in physiological systems that are responsible for the preservation of a constant internal environment. This enables cells to maintain metabolism and the chemical environment that stabilizes the living state.

Learning Outcome: 1-7

Bloom's Taxonomy: Analyzing

2) During exercise, blood flow to skeletal muscles increases. The initial response that increases blood flow is automatic and independent of the nervous and endocrine systems. Which type of homeostatic regulation is this? Why?

Answer: The initial increase in blood flow to active muscles is an example of autoregulation. For example, when oxygen levels decline in a tissue, the cells release chemicals that dilate local blood vessels. This dilation increases the rate of blood flow and provides more oxygen to the region even before responses from the nervous or endocrine system take place. Autoregulation does not require the nervous or endocrine system.

Learning Outcome: 1-7

Bloom's Taxonomy: Analyzing

3) Name the organs found in the thoracic cavity.

Answer: lungs, heart, trachea, esophagus, thymus, major blood vessels connected to the heart

Learning Outcome: 1-6

Bloom's Taxonomy: Remembering

4) Name the two upper abdominal quadrants and list the organs that lie in each.

Answer: right upper quadrant (RUQ): right lobe of liver, gallbladder, right kidney, portions of stomach, large and small intestines; left upper quadrant (LUQ): left lobe of liver, stomach, pancreas, left kidney, spleen, portions of large intestine

Learning Outcome: 1-5

Bloom's Taxonomy: Remembering

5) Explain what dynamic equilibrium is and how it affects homeostasis.

Answer: Dynamic equilibrium is defined by a system that is capable of adapting and adjusting to changing conditions in order to maintain a normal range of values. In thermal regulation at equilibrium heat loss is equal to heat production. As circumstances changing and our bodies experience more muscle contraction we increase heat production. In order to maintain equilibrium the body must shed excess heat produced by the muscles so that heat loss and heat production are again equal or in equilibrium.

Learning Outcome: 1-8

Bloom's Taxonomy: Applying