

# Test bank for Principles of Human Physiology 4th Edition by Stanfield

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## 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

Diff: 2Page Ref: 3

2) \_\_\_\_\_ carry/carries oxygen to the cells of the body, while the synthesis of these cells is regulated by the hormone \_\_\_\_\_.

- A) Erythrocytes : bone marrow
- B) Bone marrow : erythrocyte
- C) Erythrocytes : erythropoietin
- D) Erythropoietin : erythrocyte
- E) Bone marrow : erythropoietin

Answer: C

Diff: 4Page Ref: 2

3) Which of the following is NOT one of the *major* cell types found in the human body?

- A) epithelial cells
- B) muscle cells
- C) endocrine cells
- D) nervous cells
- E) connective tissue cells

Answer: C

Diff: 3Page Ref: 3

4) Which of the following is NOT a primary type of tissue? A) muscle

- B) skeletal
- C) nerve D) epithelial

E) connective

Answer: B

Diff: 3Page Ref: 3

5) The tissue type that generates mechanical force and movement, and whose activity is controlled both on a voluntary and involuntary level, is \_\_\_\_\_.

- A) muscle tissue
- B) epithelial tissue
- C) connective tissue
- D) nervous tissue
- E) skeletal tissue

Answer: A

Diff: 4Page Ref: 5

6) What tissue type functions in the transport of specific molecules from one body compartment to another?

- A) muscle tissue
- B) epithelial tissue
- C) connective tissue
- D) nervous tissue
- E) reticular tissue

Answer: B

Diff: 4Page Ref: 5

7) What tissue type lines internal hollow organs and external surfaces of the body, providing a barrier between the internal and external environment?

- A) epithelial tissue
- B) muscle tissue
- C) nervous tissue
- D) connective tissue
- E) reticular tissue

Answer: A

Diff: 4Page Ref: 5

8) Glands are derived from what type of tissue?

- A) muscle
- B) connective
- C) epithelial
- D) nerve
- E) kleenex

Answer: C Diff:

3Page Ref: 5

9) What type of tissue lines exocrine glands? A) connective

- B) epithelial
- C) exonuclear
- D) nerve
- E) muscle

Answer: B

Diff: 4 Page Ref: 5

10) Endocrine glands are derived from what type of tissue? A) muscle  
B) nerve  
C) epithelial D)  
connective E)  
reticular Answer:

C Diff: 3Page  
Ref: 5

11) What type of gland secretes products into ducts leading to the external environment? A) endocrine glands  
B) exocrine glands  
C) both endocrine and exocrine  
D) neither endocrine nor exocrine

Answer: B

Diff: 4Page Ref: 5

12) 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

Diff: 3Page Ref: 5

13) Which of the following descriptions INCORRECTLY describes the tissue type?

A) Muscle tissue is specialized for contraction and generation of force.  
B) Epithelial tissue forms glands.  
C) Nervous tissue is specialized for transmission of electrical impulses.  
D) Connective tissue is specialized for exchange between the internal and external environments.  
E) Epithelial tissue lines the lumen of internal organs.

Answer: D

Diff: 4 Page Ref: 5

14) What is a general name for the non-cellular 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

Diff: 4 Page Ref: 5

15) Which of the following is a protein found in the body that provides the tensile strength to resist stretching?

- A) Collagen
- B) Elastin
- C) Erythropoietin
- D) Basement membrane
- E) Vimentin

Answer: A

Diff: 4Page Ref: 5

16) Which of the following is a tissue type that includes the cells found within blood and bones?

- A) muscle tissue
- B) epithelial tissue
- C) connective tissue
- D) nervous tissue
- E) endocrine tissue

Answer: C

Diff: 4Page Ref: 5

17) What are the structures that attach bone to muscle called?

- A) ligaments
- B) aponeuroses
- C) extracellular matrix proteins
- D) tendons
- E) intracellular matrix

proteins Answer: D

Diff: 4Page Ref: 5

18) 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 makes a structure which performs specific functions
- E) a collection of tissues that function independently of one another

Answer: D

Diff: 3 Page Ref: 5

19) 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

Diff: 2Page Ref: 5

20) Which of the following organ systems is primarily involved in the process of digestion?

- A) immune system
- B) endocrine system
- C) gastrointestinal system
- D) cardiovascular system
- E) integumentary system

Answer: C

Diff: 2Page Ref: 5

21) Which of the following is NOT a component of the gastrointestinal system? A) salivary glands

- B) stomach
- C) gall bladder
- D) liver

E) kidneys

Answer: E Diff:

4Page Ref: 5

22) Name the two organ systems that the kidneys belong to.

- A) urinary and digestive systems
- B) urinary and immune systems
- C) endocrine and urinary systems
- D) urinary and skeletal systems
- E) endocrine and gastrointestinal systems

Answer: C

Diff: 5Page Ref: 6

23) 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 Diff:

4Page Ref: 7

24) What organ system includes the pituitary gland, adrenal gland, and thyroid gland? A) nervous

B) endocrine

C) cardiovascular

D) integumentary

E) immune

Answer: B

Diff: 3Page Ref: 6

25) What organ system protects the body against pathogens and abnormal cells?

A) nervous

B) endocrine C)

respiratory D)

integumentary

E) immune

Answer: E Diff:

3Page Ref: 6

26) What organ system functions in communication between cells of the body? A) nervous only

B) integumentary only

C) endocrine only

D) both nervous and endocrine

E) nervous, integumentary, and

endocrine Answer: D

Diff: 4Page Ref: 6

27) What type of tissue separates the internal from the external environment?

A) connective

B) epithelial

C) plasma membrane

D) nerve

E) reticular

Answer: B Diff:

3Page Ref: 4

28) 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

Diff: 4Page Ref: 6

29) What separates the internal environment of the body from the external environment? A) water  
B) walls of blood vessels  
C) membranes of blood cells  
D) plasma membrane of all body cells E) epithelium

Answer: E

Diff: 4Page Ref: 6

30) Which of the following is NOT a part of the internal environment? A) blood

B) brain

C) heart

D) airways to lungs

E) endocrine glands

Answer: D

Diff: 4Page Ref: 7

31) 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 Diff:

5Page Ref: 8

32) 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 Diff:

5Page Ref: 8

33) Referring to a membrane as "selectively permeable" describes its ability to \_\_\_\_\_.

A) restrict 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

Diff: 6 Page Ref: 8

34) 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  
Diff: 4Page Ref: 9

35) 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  
Diff: 4Page Ref: 9

36) Where is most of our total body water?  
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  
Diff: 3 Page Ref: 9

37) Which of the following compartments contains 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  
Diff: 3Page Ref: 9

38) 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  
Diff: 3 Page Ref: 9

39) 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  
Diff: 3Page Ref: 9

40) 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  
Diff: 7Page Ref: 9

41) 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  
Diff: 4Page Ref: 9

42) 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  
Diff: 5Page Ref: 9

43) 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  
Diff: 3Page Ref: 9

44) 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 negative feedback. C) The organ systems work together to maintain homeostasis. D) The intracellular fluid makes up the majority of the body fluids. E) Intrinsic control mechanisms maintain the extracellular fluid in a constant state. Answer: E  
Diff: 4Page Ref: 10

45) The maintenance of a stable internal environment compatible for life is called what? A) physiology  
B) anatomy  
C) biochemistry  
D) microbiology  
E) homeostasis  
Answer: E  
Diff: 2Page Ref: 9

46) 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  
Diff: 3Page Ref: 9

47) 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  
Diff: 4Page Ref: 9

48) 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  
Diff: 4Page Ref: 10



49) The \_\_\_\_\_ determines the extent of the error signal in a feedback loop, in order to initiate the appropriate response.

- A) sensor
  - B) integrator
  - C) effector
  - D) set point
  - E) regulated variable
- Answer: B  
Diff: 6 Page Ref: 12

50) 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

Diff: 4 Page Ref: 10

51) 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

Diff: 5 Page Ref: 10

52) 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 negative feedback loop

Answer: B  
Diff: 5Page Ref: 12

53) The positive 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

Diff: 5Page Ref: 12

54) 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

Diff: 4Page Ref: 15

55) 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

Diff: 6Page Ref: 14

56) What cells secrete insulin?

- A) I cells of the adrenal cortex
- B) G cells of the adrenal cortex
- C) alpha cells of the pancreas
- D) beta cells of the pancreas
- E) several cells located throughout the body

Answer: D

Diff: 5Page Ref: 15

57) Approximately what percentage of people living in the United States suffer from diabetes mellitus?

- A) 0.1% B) 0.5% C) 1% D) 8% E) 15%

Answer: D

Diff: 4Page Ref: 13

58) Who would be more prone to develop diabetes mellitus type II?

- A) thin, malnourished African American child
- B) obese white adult
- C) thin white adult
- D) obese hispanic adult
- E) obese hispanic child

Answer: D

Diff: 6 Page Ref: 13

59) What percentage of adults in the United States is obese? A) 10%

- B) 15% C) 20% D) 25% E) 30%

Answer: E

Diff: 4Page Ref: 13

60) Type I diabetes mellitus is also known as \_\_\_\_\_.

- A) juvenile onset diabetes mellitus
- B) adult onset diabetes mellitus
- C) ketoacidosis
- D) non-insulin dependent diabetes mellitus
- E) diabetes insipidus

Answer: A

Diff: 4Page Ref: 14

## 1.2 True/False Questions

1) Physiologists use research tools from different fields that include biochemistry and cell biology.

Answer: TRUE

Diff: 2Page Ref: 2

2) Cardiac muscle is located in the heart.

Answer: TRUE

Diff: 2 Page Ref: 4

3) Connective tissue forms both endocrine and exocrine glands. Answer: FALSE

Diff: 2Page Ref: 4

4) Exocrine glands secrete hormones.

Answer: FALSE

Diff: 3 Page Ref: 4

5) The immune system protects the body from invading microorganisms. Answer: TRUE

Diff: 3Page Ref: 6

6) Most of the cells of the body are able to directly exchange materials with the external environment.

Answer: FALSE

Diff: 4Page Ref: 7

7) The internal and external environments are separated by the selectively permeable membranes of epithelial cells.

Answer: TRUE

Diff: 3Page Ref: 8

8) The most abundant substance in the body is carbon.

Answer: FALSE

Diff: 2 Page Ref: 9

9) Intracellular and extracellular fluid are of the same ion composition. Answer: FALSE

Diff: 3Page Ref: 9

10) The homeostatic mechanisms of the body are unlimited in their ability to respond to changes in the external environment.

Answer: FALSE

Diff: 4Page Ref: 9

11) Blood glucose is a regulated variable. Answer: TRUE  
Diff: 2Page Ref: 10

12) Effectors bring about a final response in a negative feedback loop. Answer: TRUE  
Diff: 3Page Ref: 10

13) Positive feedback loops are impossible to stop once they have begun. Answer: FALSE  
Diff: 4Page Ref: 12

14) All forms of diabetes involve a decrease in plasma levels of insulin. Answer: FALSE  
Diff: 4Page Ref: 15

15) Diabetes mellitus requires insulin injections for maintenance. Answer: FALSE  
Diff: 4Page Ref: 15

16) Once a person develops gestational diabetes, she will have diabetes for life? Answer: FALSE  
Diff: 6Page Ref: 14

17) People with a body mass index (BMI) less than 25 are most prone to develop type 2 diabetes mellitus.  
Answer: FALSE  
Diff: 5Page Ref: 13

18) Cases of diabetes mellitus are increasing throughout the world, not just in the United States. Answer: TRUE  
Diff: 6Page Ref: 13

19) Obesity predisposes a person to develop type 1 diabetes mellitus.  
Answer: FALSE  
Diff: 4 Page Ref: 13

20) Diabetes mellitus causes hyperglycemia. Answer: TRUE  
Diff: 3Page Ref: 15

### 1.3 Matching Questions

*Match the following functions to the correct tissue type.*

- A) connective tissue
- B) muscle tissue
- C) nervous tissue
- D) epithelial tissue

1) Specialized for exchange of material.

Diff: 2 Page Ref: 4

2) Conducts signals via electrical impulses.

Diff: 2 Page Ref: 3

3) Provides structural support.

Diff: 2 Page Ref: 4

4) Contracts to generate a force.

Diff: 2 Page Ref: 3

Answers: 1) D 2) C 3) A 4) B

*Match the following descriptions with the correct function.*

- A) excretion
- B) absorption
- C) filtration

5) Elimination from the

body. Diff: 3 Page Ref: 8

6) Movement from the lumen of the gastrointestinal tract to blood.

Diff: 3 Page Ref: 7

7) Movement from blood into the kidney tubules.

Page Ref: 8 Diff: 3

Answers: 5) A 6) B 7) C

*Match the organ to the organ system with which it belongs.*

- A) endocrine system
- B) nervous system
- C) cardiovascular system
- D) respiratory system
- E) gastrointestinal system

8) Adrenal gland  
Diff: 5 Page Ref: 6

9) Esophagus  
Diff: 4 Page Ref: 6

10) Blood vessels  
Diff: 3 Page Ref: 6

11) Bronchi  
Diff: 4 Page Ref: 6

12) Brain  
Diff: 2 Page Ref: 6

Answers: 8) A 9) E 10) C 11) D 12) B

#### 1.4 Essay Questions

1) Describe the four general groups of cells (tissues) that are found in the body, outlining the important characteristics of each group.

Answer: Nervous tissue - Neurons are specialized for the transmission of information in the form of electrical signals. They typically possess a number of branches that function to receive or transmit those electrical signals. Some are even capable of detecting sensory information. Muscle tissue - Muscle cells are involved in force development and movement. They tend to be elongated in shape and can be under either voluntary or involuntary control.

Epithelial tissue - Epithelial cells are arranged as a sheet-like layer of cells connected to a thin, non-cellular basement membrane. These cells are found in many shapes, sizes, and layer thicknesses. They are closely associated with their neighbors, providing a barrier separating body fluids from the external environment. Certain epithelial cells are specialized to transport specific molecules from one compartment to another.

Connective tissue - This tissue encompasses many cell types including blood cells, bone cells, and many others. In a narrow sense, these cells provide physical support for other structures like tendons and ligaments. In a broader sense, the term connective tissue encompasses fluids like blood and lymph that "connect" parts of the body by providing an avenue for communication. Diff: 3 Page Ref: 3

2) Describe the essential role of water in the body and how it is compartmentalized throughout the body.

Answer: Water is the most abundant molecule in the human body. It acts as a solvent for a variety of solutes within the body. There are three compartments that comprise total body water (TBW). Extracellular fluid (1/3 of TBW), the fluid outside of cells, is composed of two compartments: 1) the fluid component of blood (plasma), which is composed mostly of sodium and protein, and 2) the fluid that bathes cells (interstitial), which is composed primarily of sodium with little protein present. The other component of TBW is intracellular fluid (2/3 of TBW). This fluid is present inside cells (cytoplasm). Intracellular fluid is relatively high in protein and potassium, and is separated from extracellular fluid by a cell membrane that is selectively permeable, allowing only specific ions through.

Diff: 4 Page Ref: 8

3) Describe the role of insulin in negative feedback control of blood glucose levels.

Answer: Increases in blood glucose levels stimulate insulin secretion from beta cells of the pancreas. Insulin acts on cells throughout the body increasing their uptake of glucose, thereby removing glucose from the blood. This causes blood glucose levels to return toward normal. Diff: 5 Page Ref: 15

4) Compare the different forms of diabetes.

Answer: There are several types of diabetes, including diabetes mellitus type 1, diabetes mellitus type 2, diabetes insipidus, and gestational diabetes. Diabetes mellitus types 1 and 2 are associated with insufficient actions of insulin causing hyperglycemia and a number of other symptoms. Diabetes mellitus type 1 is caused by decreased secretion of insulin. Without sufficient insulin, cells do not uptake glucose to meet their metabolic needs. Liver and muscle cells do not uptake insulin to store energy for later needs. Thus hyperglycemia and fatigue are common symptoms. In diabetes mellitus type 2, beta cells of the pancreas secrete insulin, but effector cells do not respond to the insulin. Thus symptoms are similar to that of diabetes mellitus type 1. Diabetes insipidus is a disease affecting the release of antidiuretic hormone (ADH). ADH promotes water reabsorption from the kidneys, and in its absence (or a decrease in tissue responsiveness to it), excessive water is lost in the urine causing dehydration. Gestational diabetes develops in some pregnant women. It is similar to type 2 diabetes mellitus, with hormones of pregnancy thought to induce the insulin resistance. Gestational diabetes often reverses following delivery of the baby.

Diff: 5 Page Ref: 14

## 1.5 Short Answer Questions

1) The smallest living units, capable of carrying out its own basic life processes are \_\_\_\_\_.

Answer: cells

Diff: 2 Page Ref: 2

2) Cells that carry oxygen in the bloodstream are called \_\_\_\_\_.

Answer: erythrocytes

Diff: 5 Page Ref: 2

3) Name the types of tissue described below.

This tissue is specialized for transport and exchange of material.

This tissue is a major component of bone, ligaments, and blood.

This tissue is specialized for generating electrical signals.

This tissue is specialized to contract.

Answer: epithelial, connective, nervous, muscle

Diff: 4 Page Ref: 3

4) Name the two types of glands and describe their secretions.

Answer: Exocrine glands secrete their product into ducts that lead to an epithelial surface.

Endocrine glands secrete their product (hormones) into the bloodstream where the hormones travel throughout the body.

Diff: 4 Page Ref: 4

5) The specific structures that attach bone to bone are called \_\_\_\_\_.

Answer: ligaments

Diff: 5 Page Ref: 5

6) The layer of epithelial cells that coats the inside (lumen) of blood vessels is called the \_\_\_\_\_.

Answer: endothelium

Diff: 5 Page Ref: 4

7) The \_\_\_\_\_ is the interior compartment of a hollow organ or vessel.

Answer: lumen

Diff: 4 Page Ref: 4

8) What organ system(s) provides communication between the cells of the body?

Answer: nervous and endocrine

Diff: 5 Page Ref: 6

9) The process whereby enzymes are moved into the gastrointestinal tract to digest nutrients is called \_\_\_\_\_.

Answer: secretion

Diff: 5 Page Ref: 7

10) The process whereby fluid and ions that have not been removed by the kidneys exit the body as urine is referred to as \_\_\_\_\_.

Answer: excretion

Diff: 4Page Ref: 8

11) The fluid (non-cellular) portion of blood is called \_\_\_\_\_.

Answer: plasma

Diff: 4 Page Ref: 9

12) The fluid compartment with a high protein and potassium concentration is called \_\_\_\_\_.

Answer: intracellular fluid

Diff: 4Page Ref: 9

13) Most of the water in the body is found (inside cells / in blood / bathing cells).

Answer: inside cells

Diff: 4 Page Ref: 9

14) Define homeostasis.

Answer: Homeostasis is the process whereby the body maintains the internal environment in a state compatible for life.

Diff: 4 Page Ref: 9

15) Insulin is a hormone that regulates blood glucose levels. It is released when glucose levels increase above normal. Based on the concept of negative feedback, insulin (increases / decreases) blood glucose levels.

Answer: decreases

Diff: 5Page Ref: 10

16) List the essential components of a feedback loop and describe their function.

Answer: Sensor - detects the regulated variable

Set point - value to which the regulated variable is compared by the integrator Integrator - determines the extent of the error signal in order to provide appropriate effector response

Effector - that which can alter the regulated variable

Diff: 5 Page Ref: 10

17) What cells secrete insulin and where are they located?

Answer: beta cells located in the islets of Langerhans in the pancreas

Diff: 6 Page Ref: 15

18) Insulin-dependent diabetes mellitus is also called \_\_\_\_\_.

Answer: type 1 diabetes mellitus or juvenile-onset diabetes

mellitus Diff: 4Page Ref: 14

19) Body mass index is a measure of weight in kilograms relative to \_\_\_\_\_.

Answer: height in meters (squared)

Diff: 4 Page Ref: 13

20) What percentage of people in the United States have diabetes mellitus? Answer: 8

Diff: 5Page Ref: 13