1. Chapter 1□Introduction to Physiology and Homeostasis Question MC
Select the incorrect association.

a. anatomy/body structure
b. human body/multicellular
*c. oxygen/cell waste product
d. physiology/body function
e. unicellular/one-celled

2. Chapter 1□Introduction to Physiology and Homeostasis Question 2
Which of the following is a mechanistic rather than a teleological explanation of a physiological phenomenon?

a. A person breathes to obtain oxygen.
b. A person sweats to cool off.
*c. A person's stomach secretes digestive juices because it is stimulated by the nervous system.
d. A person's heart beats to pump blood.
e. A person's kidneys produce urine to eliminate wastes from the body.

3. Chapter 1□Introduction to Physiology and Homeostasis Question 3
When a blood capillary is cut, a clot forms under which influence?

a. negative feedback
*b. positive feedback
c. extrinsic control
d. negative feedback and extrinsic control
e. none of these

4. Chapter 1□Introduction to Physiology and Homeostasis Question 4
The term *smooth* refers to a type of ____ tissue.

a. connective
b. epithelial
c. glandular
*d. muscle
e. nervous

5. Chapter 1□Introduction to Physiology and Homeostasis Question 5
Which of the following factors of the internal environment are homeostatically maintained?

a. concentration of nutrient molecules
b. concentration of oxygen and carbon dioxide
c. pH
d. temperature
*e. all of these

6. Chapter 1□Introduction to Physiology and Homeostasis Question 6
The outer layer of the skin consists of ____ tissue.

a. connective
b. endocrine
*c. epithelial
d. muscle
e. nervous

7. Chapter 1□Introduction to Physiology and Homeostasis Question 7
The respiratory system

a. obtains O_2 from and eliminates CO_2 to the internal environment
b. includes the heart and lungs
*c. helps regulate the pH of the internal environment by removing acid-forming CO_2 from the blood
d. all of the these
e. obtains O_2 from and eliminates CO_2 to the internal environment and helps regulate the pH of the internal environment by removing acid-forming CO_2 from the blood

8. Chapter 1□Introduction to Physiology and Homeostasis Question 8
Select the incorrect statement about connective tissue.

a. Bone is an example.
b. Blood is an example.
c. Elastin may be found in the extracellular material.
*d. It has tightly-packed cells.
e. It is a primary tissue type.

9. Chapter 1□Introduction to Physiology and Homeostasis Question 9
Which of the following body systems is not directed entirely toward maintaining homeostasis?

a. reproductive system
b. endocrine system
c. nervous system
d. all of these
*e. reproductive and nervous systems

10. Chapter 1□Introduction to Physiology and Homeostasis Question 10
Which sequence represents the correct hierarchy of biological organization in a human?

a. cell-organ-tissue-system-organism
*b. cell-tissue-organ-system-organism
c. tissue-cell-system-organism-organ
d. organ-tissue-cell-organism-system
e. system-cell-organ-organism-tissue

11. Chapter 1□Introduction to Physiology and Homeostasis Question 11
The internal environment

a. is not in direct contact with the body's cells
b. consists of the intracellular fluid
c. must be maintained at absolutely unchanging composition, temperature, and volume for survival of the body
*d. is in direct contact with the body's cells and consists of the extracellular fluid
e. consists of the intracellular fluid and must be maintained at absolutely unchanging composition, temperature, and volume for survival of the body

12. Chapter 1□Introduction to Physiology and Homeostasis Question 12
Extracellular fluid

a. is the internal environment of the body
b. is outside the cells but inside the body
c. consists of the plasma and interstitial fluid
d. exhibits a dynamic steady state in regard to composition, temperature, and volume
*e. all of these

13. Chapter 1□Introduction to Physiology and Homeostasis Question 13
Nutrients and oxygen are distributed through the body mainly by the ____ system.

*a. circulatory
b. digestive
c. endocrine
d. integumentary
e. skeletal

14. Chapter 1□Introduction to Physiology and Homeostasis Question 14
Which of the following statements about negative feedback is incorrect?

a. It exists when a change in a regulated variable triggers a response that opposes the change.
b. It exists when the input to a system increases the output and the output inhibits the input.
*c. The control system's input and output continue to enhance each other.
d. It is the method by which most of the body's control mechanisms operate.
e. It helps maintain the body's dynamic, steady state.

15. Chapter 1□Introduction to Physiology and Homeostasis Question 15
Identify the characteristics associated with endocrine glands.

a. lack ducts
b. secrete chemicals directly into the blood
c. derived from epithelial tissue
d. include the parathyroids
*e. all of these

16. Chapter 1□Introduction to Physiology and Homeostasis Question 16
Which of the following is least related to connective tissue?

*a. thymus
b. bone
c. blood
d. tendon
e. elastin

17. Chapter 1□Introduction to Physiology and Homeostasis Question 17
Which of the following is not an example of negative feedback?

a. A low grade on an exam causes a student to study harder for the next exam.
*b. A small stone rolls down a hill and starts an avalanche.
c. A person goes to eat in the cafeteria when he/she gets hungry.
d. You change a flat tire so you can continue on a journey in your car.
e. A person's body shivers after the person falls into a cold river.

18. Chapter 1□Introduction to Physiology and Homeostasis Question 18
Evaporation of sweat cooling the body is an example of

*a. negative feedback
b. positive feedback
c. a feedforward mechanism
d. an intrinsic (local) control mechanism
e. autoregulation

19. Chapter 1□Introduction to Physiology and Homeostasis Question 19
The two systems concerned with the control of body functioning are:

a. nervous and respiratory
*b. nervous and endocrine
c. endocrine and respiratory
d. endocrine and lymphatic
e. circulatory and endocrine

20. Chapter 1□Introduction to Physiology and Homeostasis Question 20
Calcium is stored mainly in the ____ system.

a. digestive
b. endocrine
c. integumentary
d. muscular
*e. skeletal

21. Chapter 1□Introduction to Physiology and Homeostasis Question 21
If a letter in the alphabet is equated to a cell, then ____ would be most like an organ.

a. two paragraphs
b. a paragraph
c. a word
*d. a sentence
e. two sentences

22. Chapter 1□Introduction to Physiology and Homeostasis Question 22
Identify the correct statement(s) about stem cells.

a. They are undifferentiated embryonic cells.
b. They may reproduce many times.
c. Their daughter cells may differentiate into a number of different specialized cell types.
*d. All of these.
e. None of these.

23. Chapter 1□Introduction to Physiology and Homeostasis Question 23
Which of the following is a feedforward phenomenon?

*a. increasing the amount of insulin secreted before nutrients in food enter the blood
b. shivering in response to having cold air around the body
c. sweating after being in a sauna for 10 minutes
d. eating a doughnut because you are hungry
e. shivering in response to having cold air around the body and sweating after being in a sauna for 10 minutes

24. Chapter 1□Introduction to Physiology and Homeostasis Question TF
Cells eliminate carbon dioxide as a waste product.

*a. True
b. False

25. Chapter 1□Introduction to Physiology and Homeostasis Question 24
All cells that are not pluripotent can reproduce.

a. True
*b. False

26. Chapter 1□Introduction to Physiology and Homeostasis Question 25
Highly differentiated tissues such as nervous and cardiac muscle are incapable of reproduction because they are pluripotent.

a. True
*b. False

27. Chapter 1□Introduction to Physiology and Homeostasis Question 26
Enzymes are carbohydrates that speed up chemical reactions in the body.

a. True
*b. False

28. Chapter 1□Introduction to Physiology and Homeostasis Question 27
A mechanistic explanation of why a person breathes is to obtain oxygen.

a. True
*b. False

29. Chapter 1□Introduction to Physiology and Homeostasis Question 28
A teleological (non-mechanistic) explanation of why a person sweats is to cool off.

*a. True
b. False

30. Chapter 1□Introduction to Physiology and Homeostasis Question 29
Tissues are composed of two or more types of cells organized to perform a particular function or functions.

a. True
*b. False

31. Chapter 1□Introduction to Physiology and Homeostasis Question 30
Blood is a type of connective tissue that contains small fibers of elastin protein in the extracellular material called plasma.

a. True
*b. False

32. Chapter 1□Introduction to Physiology and Homeostasis Question 31
Glands are formed during embryonic development by pockets of epithelial tissue that dip inward from the surface.

*a. True
b. False

33. Chapter 1□Introduction to Physiology and Homeostasis Question 32
Endocrine glands secrete hormones through ducts into the blood.

a. True
*b. False

34. Chapter 1□Introduction to Physiology and Homeostasis Question 33
Insulin is a hormone that is secreted into the lumen of the intestine in response to the presence of food.

a. True
*b. False

35. Chapter 1□Introduction to Physiology and Homeostasis Question 34
The epidermis that covers the skin is a simple organ.

a. True
*b. False

36. Chapter 1□Introduction to Physiology and Homeostasis Question 35
The external environment is found outside cells but inside the body.

a. True
*b. False

37. Chapter 1□Introduction to Physiology and Homeostasis Question 36
Factors that are homeostatically regulated are maintained at a constant, fixed level unless disease is present.

a. True
*b. False

38. Chapter 1□Introduction to Physiology and Homeostasis Question 37
The lungs remove carbon dioxide from the blood plasma.

*a. True
b. False

39. Chapter 1□Introduction to Physiology and Homeostasis Question 38
To sustain life, the internal environment must be maintained in an absolutely unchanging state.

a. True
*b. False

40. Chapter 1□Introduction to Physiology and Homeostasis Question 39
Some activities performed by the muscular and nervous systems are not directed toward maintaining homeostasis.

*a. True
b. False

41. Chapter 1□Introduction to Physiology and Homeostasis Question 40
The plasma surrounds and bathes all of the body's cells.

a. True
*b. False

42. Chapter 1□Introduction to Physiology and Homeostasis Question 41
The concentration of salt in the extracellular fluid influences how water enters and leaves cells.

*a. True
b. False

43. Chapter 1□Introduction to Physiology and Homeostasis Question 42
Exocrine glands are the only structures in the body capable of secretion.

a. True
*b. False

44. Chapter 1□Introduction to Physiology and Homeostasis Question 43
Secretion in response to appropriate stimulation refers to the release of specific products that have, in large part, been synthesized by the cell.

*a. True
b. False

45. Chapter 1□Introduction to Physiology and Homeostasis Question 44
The endocrine system relies on the circulatory system for the transport of hormones.

*a. True
b. False

46. Chapter 1□Introduction to Physiology and Homeostasis Question 45
One organ can belong to more than one body system.

*a. True
b. False

47. Chapter 1□Introduction to Physiology and Homeostasis Question 46
The integumentary system contains specialized organs called sweat glands, which are important in regulating body temperature.

*a. True
b. False

48. Chapter 1□Introduction to Physiology and Homeostasis Question 47
Negative feedback operates to maintain a controlled factor in a relatively steady state.

*a. True
b. False

49. Chapter 1□Introduction to Physiology and Homeostasis Question 48
Positive feedback moves a controlled variable even further away from a steady

state.

*a. True
b. False

50. Chapter 1□Introduction to Physiology and Homeostasis Question 49
With positive feedback, a control system's input and output continue to enhance each other.

*a. True
b. False

51. Chapter 1□Introduction to Physiology and Homeostasis Question 50
Feedforward mechanisms bring about a response in reaction to a change in a regulated variable.

a. True
*b. False

52. Chapter 1□Introduction to Physiology and Homeostasis Question 51
Most homeostatic mechanisms operate on the principle of positive feedback.

a. True
*b. False

53. Chapter 1□Introduction to Physiology and Homeostasis Question 52
A single pluripotent cell without dividing can differentiate into more than one kind of mature body cell.

a. True
*b. False

54. Chapter 1□Introduction to Physiology and Homeostasis Question CO
Complete each of the following statments.

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

Correct Answer(s):
a. cell

55. Chapter 1□Introduction to Physiology and Homeostasis Question 53
Complete each of the following statments.

_____ cells are specialized to send electrical signals.

Correct Answer(s):
a. Nerve

56. Chapter 1□Introduction to Physiology and Homeostasis Question 54
Complete each of the following statments.

_____ muscle tissue composes the heart.

Correct Answer(s):
a. Cardiac

57. Chapter 1□Introduction to Physiology and Homeostasis Question 55
Complete each of the following statments.

_____ are composed of two or more types of primary tissue organized to perform a particular function or functions.

Correct Answer(s):
a. Organs

58. Chapter 1□Introduction to Physiology and Homeostasis Question 56
Complete each of the following statments.

_____ glands secrete through ducts, whereas
_____ glands secrete directly into the blood.

Correct Answer(s):
a. Exocrine, endocrine

59. Chapter 1□Introduction to Physiology and Homeostasis Question 57
Complete each of the following statments.

A(n) _____ is a collection of organs that perform related functions and interact to accomplish a common activity that is essential for survival of the whole body.

Correct Answer(s):
a. system

60. Chapter 1□Introduction to Physiology and Homeostasis Question 58
Complete each of the following statments.

The internal environment consists of the _____, which is made up of _____; the fluid portion of the blood; and _____, which surrounds and bathes all cells.

Correct Answer(s):
a. extracellular fluid, plasma, interstitial fluid

61. Chapter 1□Introduction to Physiology and Homeostasis Question 59
Complete each of the following statments.

The _____ is the liquid part of the blood.

Correct Answer(s):
a. plasma

62. Chapter 1□Introduction to Physiology and Homeostasis Question 60
Complete each of the following statments.

The body cells are in direct contact with, and make life-sustaining exchanges with, the _____.

Correct Answer(s):
a. internal environment (extracellular fluid)

63. Chapter 1□Introduction to Physiology and Homeostasis Question 61
Complete each of the following statments.

_____ refers to maintenance of a relatively stable internal environment.

Correct Answer(s):
a. Homeostasis

64. Chapter 1□Introduction to Physiology and Homeostasis Question 62
Complete each of the following statments.

_____ tissue is composed of cells specialized for contraction and force generation.

Correct Answer(s):
a. Muscle

65. Chapter 1□Introduction to Physiology and Homeostasis Question 63
Complete each of the following statments.

The _____ system consists of all hormone-secreting tissues.

Correct Answer(s):
a. endocrine

66. Chapter 1□Introduction to Physiology and Homeostasis Question 64
Complete each of the following statments.

The two major control systems of the body are the _____ and the _____.

Correct Answer(s):
a. nervous system, endocrine system

67. Chapter 1□Introduction to Physiology and Homeostasis Question 65
Complete each of the following statments.

_____ are the blood vessels where materials are exchanged between the blood and the interstitial fluid.

Correct Answer(s):
a. Capillaries

68. Chapter 1□Introduction to Physiology and Homeostasis Question 66
Complete each of the following statments.

The spleen is part of the _____ system.

Correct Answer(s):
a. immune (lymphatic)

69. Chapter 1□Introduction to Physiology and Homeostasis Question 67
Complete each of the following statments.

The _____ system eliminates waste products other than carbon dioxide and plays a key role in regulating the volume, electrolyte composition, and acidity of the extracellular fluid.

Correct Answer(s):
a. urinary

70. Chapter 1□Introduction to Physiology and Homeostasis Question 68
Complete each of the following statments.

The _____ system controls and coordinates bodily activities that require swift responses, especially to changes in the external environment.

Correct Answer(s):
a. nervous

71. Chapter 1□Introduction to Physiology and Homeostasis Question 69
Complete each of the following statments.

_____ refers to the abnormal functioning of the body associated with disease.

Correct Answer(s):
a. Pathophysiology

72. Chapter 1□Introduction to Physiology and Homeostasis Question 70
Complete each of the following statments.

"Reaction counteracts stress" would be a shorthand way of defining _____ feedback.

Correct Answer(s):
a. negative

73. Chapter 1□Introduction to Physiology and Homeostasis Question 71
Complete each of the following statments.

_____ cells are not specialized for a specific function but can divide to give rise to highly specialized cells.

Correct Answer(s):
a. Stem

74. Chapter 1□Introduction to Physiology and Homeostasis Question 72
Complete each of the following statments.

_____ stem cells are partially differentiated, harvested from adults, and can become highly differentiated, specialized cell types.

Correct Answer(s):
a. Tissue-specific

75. Chapter 1□Introduction to Physiology and Homeostasis Question 73
Complete each of the following statments.

_____ stem cells are undifferentiated cells that result from the early divisions of a fertilized egg and ultimately give rise to all specialized cells of the body.

Correct Answer(s):
a. Embryonic stem

76. Chapter 1□Introduction to Physiology and Homeostasis Question MA
Indicate whether the following physiological event represents:Increased blood flow into muscle tissue in response to a localized increase in carbon dioxideRelease of a hormone to lower blood calcium levels when they get too highIncreased cardiac activity to elevate blood pressure when systemic pressure is lowRapid clotting of blood due to increasing levels of platelet activity at a site of vessel damageintrinsic control negative feedback control negative feedback control positive feedback control feedforward control

[a] 1. Increased blood flow into muscle tissue in response to a localized increase in carbon dioxide
[b] 2. Release of a hormone to lower blood calcium levels when they get too high
[c] 3. Increased cardiac activity to elevate blood pressure when systemic pressure is low
[d] 4. Rapid clotting of blood due to increasing levels of platelet activity at a site of vessel damage

a. intrinsic control
b. negative feedback control
c. negative feedback control

d. positive feedback control
e. feedforward control

77. Chapter 1□Introduction to Physiology and Homeostasis Question 74
Use the following answer code to indicate which tissue is being identified.Composed of cells specialized for contractionIncludes cells specialized for exchanging material between plasma and interstitial fluidConnects, supports, and anchors body partsPrimary component of the heartPrimary component of a boneIncludes cells that form glandsLines the digestive tractPrimary component of the brainIncludes blood as a major typeHas relatively few cells within an extracellular materialHas one specific type classified as "smooth"muscle tissue epithelial tissue connective tissue muscle tissue connective tissue epithelial tissue epithelial tissue nervous tissue connective tissue connective tissue muscle tissue

[a] 1. Composed of cells specialized for contraction
[b] 2. Includes cells specialized for exchanging material between plasma and interstitial fluid
[c] 3. Connects, supports, and anchors body parts
[d] 4. Primary component of the heart
[e] 5. Primary component of a bone
[f] 6. Includes cells that form glands
[g] 7. Lines the digestive tract
[h] 8. Primary component of the brain
[i] 9. Includes blood as a major type
[j] 10. Has relatively few cells within an extracellular material
[k] 11. Has one specific type classified as "smooth"

a. muscle tissue
b. epithelial tissue
c. connective tissue
d. muscle tissue
e. connective tissue
f. epithelial tissue
g. epithelial tissue
h. nervous tissue
i. connective tissue
j. connective tissue
k. muscle tissue

78. Chapter 1□Introduction to Physiology and Homeostasis Question 75
Temperature-sensitive nerve cells monitor the body temperature and provide information about its status to a temperature-control center in the hypothalamus, a part of the brain. The hypothalamus can bring about adjustments in body temperature by inducing shivering or sweating, among other things. Indicate the roles served by each component of this control system using the following answer code.Body temperatureTemperature-sensitive nerve cellsSkeletal muscles and sweat glandsHypothalamuscontrolled variable sensor effector integrator

[a] 1. Body temperature
[b] 2. Temperature-sensitive nerve cells
[c] 3. Skeletal muscles and sweat glands
[d] 4. Hypothalamus

a. controlled variable
b. sensor
c. effector
d. integrator

79. Chapter 1□Introduction to Physiology and Homeostasis Question OT
nar002-1.jpg

Use the figure above to answer the corresponding questions.

Which number identifies the system that serves as the source of all blood cells?

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

Correct Answer:
b

80. Chapter 1□Introduction to Physiology and Homeostasis Question 76
nar002-1.jpg

Use the figure above to answer the corresponding questions.

Which number identifies the system that serves as a regulatory system in which the duration of activity is more important than the speed of activity?

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

Correct Answer:
e

81. Chapter 1□Introduction to Physiology and Homeostasis Question 77
nar002-1.jpg

Use the figure above to answer the corresponding questions.

Which number identifies the system that serves as the site of nutrient and waste exchange between cells and the interstitial fluid?

a. 1
b. 2
c. 3

d. 4
e. 5

Correct Answer:
a

82. Chapter 1□Introduction to Physiology and Homeostasis Question ES
Beginning with the chemical level and ending with the system level, compare the different levels of organization in the human body with the following things found on a page in a book: sentence, letter, word, ink in a letter, paragraph, and all paragraphs on a page.

Correct Answer:
The ink would be like the chemical level and it forms the letters, which would be like cells. Two or more letters together make up a word, which is like a tissue. Two or more words make up a sentence, which is like an organ; and two or more sentences make up a paragraph, which is like a body system. All paragraphs on a page would be like all body systems together, which make up the human body.

83. Chapter 1□Introduction to Physiology and Homeostasis Question 78
The pancreas is part of the endocrine system and secretes the hormone insulin, which allows most body cells to absorb glucose from the blood. A lack of insulin can result in hyperglycemia (high blood glucose), which can adversely affect one's health. Describe the roles of the digestive system, circulatory system, and endocrine systems in maintaining glucose homeostasis when a person eats a sugary meal.

Correct Answer:
The digestive system breaks down the sugary meal and transports the sugars into the blood. The circulatory system transports the sugars throughout the body. If the level of glucose in the blood increases above optimum, the endocrine system releases insulin that causes body cells to absorb glucose, thus lowering the glucose to optimum levels in the blood.

84. Chapter 1□Introduction to Physiology and Homeostasis Question 79
Explain the long-term adaptations made by the heart in response to an exercise regimen of sufficient intensity and duration, and explain how this is beneficial to the heart and to the athlete.

Correct Answer:
The heart increases its strength and efficiency so that it pumps more blood per beat. This allows the muscles to receive more oxygen to meet the increased demand. Because of the increased pumping ability, the heart does not have to beat as rapidly to pump a given quantity of blood as it did before beginning the exercise regimen.