Chapter 01

Major Themes of Anatomy and Physiology

True / False Questions

1. Sometimes anatomical terms come from origins that do not lend any insight into their meaning.
   True    False

2. Feeling for swollen lymph nodes is an example of auscultation.
   True    False

3. We can see through bones with magnetic resonance imaging (MRI).
   True    False

4. Histology is the study of structures that can be observed without a magnifying lens.
   True    False

5. Cells were first named by microscopist Robert Hooke.
   True    False

6. All functions of the body can be interpreted as the effects of cellular activity.
   True    False

7. The hypothetico-deductive method is common in physiology, whereas the inductive method is common in anatomy.
   True    False

8. An individual scientific fact has more information than a theory.
   True    False

9. Evolutionary (Darwinian) medicine traces some of our diseases to our evolutionary past.
   True    False

10. The terms development and evolution have the same meaning in physiology.
    True    False
11. Organs are made of tissues.
   True    False

12. A molecule of water is more complex than a mitochondrion (organelle).
   True    False

13. Homeostasis and occupying space are both unique characteristics of living things.
   True    False

14. Positive feedback helps to restore normal function when one of the body's physiological variables gets out of balance.
   True    False

15. Negative feedback is a self-amplifying chain of events that tends to produce rapid change in the body.
   True    False

16. Anatomists around the world adhere to a lexicon of standard international terms, which stipulates both Latin names and accepted English equivalents.
   True    False

Multiple Choice Questions

17. Feeling structures with your fingertips is called _______, whereas tapping on the body and listening for sounds of abnormalities is called _________.

   A. palpation; auscultation
   B. auscultation; percussion
   C. percussion; auscultation
   D. palpation; percussion
   E. percussion; palpation

18. Known as "the father of modern anatomy," ________ was the first to publish accurate drawings of the body.

   A. Vesalius
   B. Maimonides
   C. Harvey
   D. Aristotle
   E. van Leeuwenhoek
19. The most influential medical textbook of the ancient era was written by ________.

A. Hippocrates  
B. Aristotle  
C. Galen  
D. Vesalius  
E. Avicenna

20. Which of these is the best imaging technique for routinely examining the anatomical development of a fetus?

A. Auscultation  
B. PET scan  
C. MRI  
D. Sonography  
E. Radiography

21. The terms physics, physiology, and physician come from a term that ________ proposed to distinguish natural causes from supernatural causes.

A. Hippocrates  
B. Plato  
C. Schwann  
D. Aristotle  
E. Avicenna

22. Who was a physician to the Roman gladiators, learned by dissection of animals, and saw science as a method of discovery?

A. Hippocrates  
B. Plato  
C. Schwann  
D. Aristotle  
E. Galen

23. The process of using numerous observations to develop general principles and predictions about a specific subject is called ________.

A. experimental design  
B. the deductive method  
C. the inductive method  
D. a hypothesis  
E. statistical testing
24. Most people think that ulcers are caused by psychological stress. It was discovered that an acid-resistant bacterium, \textit{Heliobacter pylori}, lives in the lining of the stomach. If these bacteria cause ulcers, then treatment with an antibiotic should reduce ulcers. This line of investigation is an example of __________.

A. hypothetical reasoning  
B. hypothetico-deductive reasoning  
C. the inductive method  
D. experimental design  
E. statistical analysis

25. An educated speculation or a possible answer to a question is called a(n) __________.

A. scientific method  
B. theory  
C. law  
D. hypothesis  
E. fact

26. The use of controls and statistical testing are two aspects of experimental design that help to ensure __________.

A. an adequate sample size  
B. objective and reliable results  
C. experimental bias  
D. psychosomatic effects  
E. treatment groups

27. ______________ is a process that submits a scientist's ideas to the critical judgment of other specialists in the field before the research is funded or published.

A. Adjudication  
B. Statistical testing  
C. Falsification  
D. Peer review  
E. Hypothetico-deductive testing

28. Which of the following would contain the greatest amount of information that scientists consider to be true to the best of their knowledge?

A. A fact  
B. A law of nature  
C. A hypothesis  
D. An equation  
E. A theory
29. The study of the structure and function of cells is called ___________.

A. cytology  
B. gross anatomy  
C. exploratory physiology  
D. comparative physiology  
E. radiology

30. ________________ established a code of ethics for physicians. He is considered the "father of medicine."

A. Aristotle  
B. Hippocrates  
C. Galen  
D. Vesalius  
E. Hooke

31. A new drug apparently increases short-term memory. Students were divided randomly into two groups at the beginning of the semester. One group was given the memory pill once a day for the semester, and the other group was given a same-looking pill, but it was just sugar. The sugar pill is termed a(n) __________.

A. controlled pill  
B. placebo  
C. treatment pill  
D. variable  
E. effective dose

32. Two groups of people were tested to determine whether garlic lowers blood cholesterol levels. One group was given 800 mg of garlic powder daily for four months and exhibited an average 12% reduction in the blood cholesterol. The other group was not given any garlic and after four months averaged a 3% reduction in cholesterol. The group that was not given the garlic was the __________ group.

A. peer  
B. test  
C. treatment  
D. control  
E. double-blind

33. A change in the genetic composition of a population over time is called ___________.

A. mutation  
B. natural selection  
C. selection pressure  
D. evolution  
E. adaptation
34. The constant appearance of new strains of influenza virus is an example of __________.

A. a model  
B. evolution  
C. selection pressure  
D. survivorship  
E. success  

35. The principal theory of how evolution works is called __________.

A. natural pressure  
B. selective pressure  
C. darwinian pressure  
D. natural adaptation  
E. natural selection  

36. Which of the following was an adaptation that evolved in connection with human upright walking?

A. Hair  
B. Fully opposable thumbs  
C. Stereoscopic vision  
D. Color vision  
E. Spinal and pelvic anatomy  

37. Stereoscopic vision provides __________.

A. opposable perception  
B. color perception  
C. depth perception  
D. bipedalism  
E. opposition of thumbs  

38. A human is born before his/her nervous system has matured. This is traceable to __________.

A. their inability to regulate body temperature  
B. skeletal adaptations to bipedalism  
C. the arboreal habits of early primates  
D. the conditions of modern civilization  
E. the diet of early species of Homo
39. The species of modern humans is called _________.

A. Homo erectus
B. Homo sapiens
C. Homo habilis
D. early Homo
E. Australopithecus

40. Most primates are _______________, meaning they live in trees.

A. prehensile
B. bipedal
C. cursorial
D. troglodytic
E. arboreal

41. An _______________ is composed of two or more tissues types, whereas ____________ are microscopic structures in a cell.

A. organ system; organs
B. organ system; organelles
C. organ; organelles
D. organ; molecules
E. organelle; molecules

42. Which of the following lists levels of human structure from the most complex to the simplest?

A. Organelle, cell, tissue, organ, organ system
B. Organ system, organ, cell, tissue, organelle
C. Organ system, organelle, tissue, cell, organ
D. Organ system, organ, tissue, cell, organelle
E. Organ, organ system, tissue, cell, organelle

43. Which of the following lists examples of body structures from the simplest to the most complex?

A. Mitochondrion, connective tissue, protein, stomach, adipocyte (fat cell)
B. Protein, mitochondrion, adipocyte (fat cell), connective tissue, stomach
C. Mitochondrion, connective tissue, stomach, protein, adipocyte (fat cell)
D. Protein, adipocyte (fat cell), stomach, connective tissue, mitochondrion
E. Protein, stomach, connective tissue, adipocyte (fat cell), mitochondrion
44. A(n) _____________ is a group of similar cells and their intercellular materials in a discrete region of an organ performing a specific function.

A. macromolecule
B. organ system
C. organelle
D. organism
E. tissue

45. Taking apart a clock to see how it works is similar to ____________ thinking about human physiology.

A. comparative
B. evolutionary
C. holistic
D. inductive
E. reductionist

46. _______________ approaches understanding of the human body by studying the interactions of its parts.

A. Naturalism
B. Reductionism
C. Vitalism
D. Holism
E. Rationalism

47. _____________ is the view that not everything about an organism can be understood or predicted from the knowledge of its components; that is, the whole is greater than the sum of its parts.

A. Naturalism
B. Reductionism
C. Holism
D. Materialism
E. Science

48. The fact that most of us have five lumbar vertebrae, but some people have six and some have four, is an example of ____________ variation among organisms.

A. cellular
B. holistic
C. physiological
D. anatomical
E. reductionist
49. A surgeon needs to be familiar with different versions of anatomy. This is because of the phenomenon of _____.

A. cellular adaptation
B. holistic medicine
C. physiological variation
D. anatomical variation

50. A hemoglobin level of 12g/dL is normal for an adult female, but low for an adult male. This is an example of _____.

A. cellular adaptation
B. holistic medicine
C. physiological variation
D. anatomical variation

51. ________________ are the simplest body structures considered alive.

A. Organ systems
B. Organs
C. Cells
D. Organelles
E. Molecules

52. All of the following are human organ systems except __________.

A. skeletal
B. endocrine
C. epidermal
D. reproductive
E. lymphatic

53. All of the following are organs except __________.

A. teeth
B. the skin
C. nails
D. the liver
E. the digestive system
54. Metabolism is the sum of all __________ __________ change.

A. external; physical  
B. external; chemical  
C. internal; chemical  
D. internal; physical  
E. stimulated; movement

55. We live in an ever-changing environment outside of our body, yet our internal conditions remain relatively stable. This is called __________.

A. homeostasis  
B. metastasis  
C. responsiveness  
D. adaptation  
E. evolution

56. During exercise, one generates excess heat and the body temperature rises. As a response, blood vessels dilate in the skin, warm blood flows closer to the body surface, and heat is lost. This is an example of __________.

A. negative feedback  
B. positive feedback  
C. dynamic equilibrium  
D. integration control  
E. set point adjustment

57. When a woman is giving birth, the head of the baby pushes against her cervix and stimulates the release of the hormone oxytocin. Oxytocin travels in the blood and stimulates the uterus to contract. Labor contractions become more and more intense until the baby is expelled. This is an example of __________.

A. negative feedback  
B. positive feedback  
C. dynamic equilibrium  
D. integration control  
E. set point adjustment

58. Which of the following is most likely to cause disease?

A. Positive feedback  
B. Negative feedback  
C. Homeostasis  
D. Equilibrium  
E. Irritability
59. Blood glucose concentration rises after a meal and stimulates the pancreas to release the hormone insulin. Insulin travels in the blood and stimulates the uptake of glucose by body cells from the bloodstream, thus reducing blood glucose concentration. This is an example of ________.

A. negative feedback
B. positive feedback
C. dynamic equilibrium
D. integration control
E. set point adjustment

60. Which of the following is not an aspect that could result in physiological variation?

A. Age
B. Gender
C. Environment
D. Physical activity
E. These are all aspects that can cause physiological variation.

61. The change in size of the bone marrow (where blood cells are produced) as an infant matures is an example of __________, whereas the transformation of blood stem cells into white blood cells is an example of __________.

A. development; differentiation
B. growth; development
C. growth; differentiation
D. differentiation; growth
E. differentiation; development

62. Three common components of a feedback loop are ________, ________, and ________.

A. stimulus; integrating (control) center; organ system
B. stimulus; receptor; integrating (control) center
C. receptor; integrating (control) center; effector
D. receptor; organ; organ system
E. receptor; integrating (control) center; organ system

63. Negative feedback loops are __________.

A. homeostatic mechanisms
B. not homeostatic mechanisms
C. associated with "vicious circles"
D. self-amplifying cycles
E. usually harmful
64. The prefix hypo- means _______________, whereas hyper- means _____________.

A. front; back  
B. right; left  
C. inside; outside  
D. clear; dark  
E. below; above

65. The term fallopian tube (uterine tube) is an example of ___________.

A. a Latin root used in medical terminology  
B. the use of prefixes to name an anatomical structure  
C. the use of suffixes to name an anatomical structure  
D. an eponym  
E. an acronym

66. Hypercalcemia means _________.

A. elevated calcium levels in blood  
B. lowered calcium levels in bone  
C. elevated sodium levels in blood  
D. elevated calcium levels in bone  
E. lowered calcium levels in the blood

67. The plural of axilla (armpit) is ____________, whereas the plural of appendix is _____________.

A. axillae; appendices  
B. axillides; appendages  
C. axillies; appendi  
D. axilli; appendices

68. The plural of villus (hair) is ____________, whereas the plural of diagnosis is _____________.

A. villuses; diagnoses  
B. villi; diagnoses  
C. villus; diagnosis  
D. villi; diagnosis  
E. villuses; diagnosis
69. The lexicon of standard international anatomical terms is __________.

A. called *Nomina Anatomica* (NA)
B. formed from thousands of French word roots
C. called *Terminologia Anatomica* (TA)
D. formed from thousands of English word roots
E. formed from thousands of Italian word roots

70. The study of normal body structures is called __________.

A. biology
B. pathology
C. anatomy
D. microscopy
E. physiology

71. The study of how hormones function is called __________.

A. neuroanatomy
B. neurophysiology
C. endocrinology
D. histology
E. pathophysiology

72. The study of mechanism of disease is called __________.

A. histology
B. neuroanatomy
C. pathophysiology
D. endocrinology
E. neurophysiology

73. The study of how the body functions is called __________.

A. anatomy
B. chemistry
C. physiology
D. neuroanatomy
E. histology
74. A physiological ________ is a difference in chemical concentration, electrical charge, physical pressure, temperature, or other variables between one point and another.

A. membrane  
B. gradient  
C. imbalance  
D. feedback loop  
E. barrier

75. Chemicals in a solution can move down a concentration gradient. This means the chemical will move from the area of ________ concentration to the area of ________ concentration.

A. low; high  
B. high; high  
C. low; low  
D. equal; equal  
E. high; low

76. Which of the following is not an example of a physiological gradient?

A. Electrical  
B. Tissue  
C. Pressure  
D. Thermal  
E. Concentration

77. DNA is an example of an ________, whereas PET scan is an example of an ________.

A. eponym; abbreviation  
B. acronym; eponym  
C. eponym; acronym  
D. abbreviation; acronym  
E. acronym; abbreviation

78. Precise spelling is important in anatomy because ________.

A. there are many similar terms in anatomy that refer to different structures  
B. it's easier to remember acronyms when spelled correctly  
C. there are many different ways to spell certain terms  
D. eponyms are difficult to memorize  
E. it's important to practice language skills
79. The ileum is ____________, whereas the ilium is __________.

A. a muscle; a bone  
B. a bone; a muscle  
C. part of the hip bone; part of the small intestine  
D. a bone in the wrist; a muscle of the back  
E. part of the small intestine; part of the hip bone

80. Ultrastructure refers to the detailed structure to the level of the _____.

A. molecule  
B. cell  
C. organelle  
D. tissue

81. What type of gradient cause the movement of ions due to both charge and concentration differences?

A. pressure gradient  
B. electrochemical gradient  
C. thermal gradient  
D. concentration gradient
82. If a species of animal evolves over generations to grow a large fan-blade like growth on its back to catch the wind and cool its body, this would be an example of responding to _____.

A. selection pressure
B. adaptation
C. natural selection
D. climate change

83. Modern anatomical language is based on _____ and _____ because individuals speaking these languages made most of the early anatomical discoveries.

A. Greek; Latin
B. English; Japanese
C. English; Spanish
D. Roman; Latin

**True / False Questions**

84. Lou Gehrig disease is the eponym for amyotropic lateral sclerosis, made famous by the "ice bucket challenge."

True    False
Chapter 01 Major Themes of Anatomy and Physiology Answer Key

True / False Questions

1. Sometimes anatomical terms come from origins that do not lend any insight into their meaning.

**TRUE**

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
HAPS Topic: Module A05 Basic terminology.
Learning Outcome: 01.07e State some reasons why the literal meaning of a word may not lend to insight into its definition.
Section: 01.07
Topic: Scope of anatomy and physiology

2. Feeling for swollen lymph nodes is an example of auscultation.

**FALSE**

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: 01.01b Describe several ways of studying human anatomy.
Section: 01.01
Topic: Scope of anatomy and physiology

3. We can see through bones with magnetic resonance imaging (MRI).

**TRUE**

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
Learning Outcome: 01.01b Describe several ways of studying human anatomy.
Section: 01.01
Topic: Scope of anatomy and physiology

4. Histology is the study of structures that can be observed without a magnifying lens.

**FALSE**

Accessibility: Keyboard Navigation
Blooms Level: 1. Remember
Gradable: automatic
HAPS Topic: Module A05 Basic terminology.
Learning Outcome: 01.01b Describe several ways of studying human anatomy.
Section: 01.01
Topic: Scope of anatomy and physiology
5. Cells were first named by microscopist Robert Hooke.  

TRUE

6. All functions of the body can be interpreted as the effects of cellular activity.

TRUE

7. The hypothetico-deductive method is common in physiology, whereas the inductive method is common in anatomy.

TRUE

8. An individual scientific fact has more information than a theory.

FALSE

9. Evolutionary (Darwinian) medicine traces some of our diseases to our evolutionary past.

TRUE

10. The terms development and evolution have the same meaning in physiology.

FALSE
11. Organs are made of tissues.  

   TRUE

   Accessibility: Keyboard Navigation  
   Blooms Level: 1. Remember  
   Gradable: automatic  

   HAPS Objective: A06.01 Describe, in order from simplest to most complex, the major levels of organization in the human organism.  
   HAPS Topic: Module A06 Levels of organization.  
   Learning Outcome: 01.05a List the levels of human structure from the most complex to the simplest.  
   Section: 01.05  
   Topic: Scope of anatomy and physiology

12. A molecule of water is more complex than a mitochondrion (organelle).  

   FALSE

   Accessibility: Keyboard Navigation  
   Blooms Level: 3. Apply  
   Gradable: automatic  

   HAPS Objective: A06.01 Describe, in order from simplest to most complex, the major levels of organization in the human organism.  
   HAPS Topic: Module A06 Levels of organization.  
   Learning Outcome: 01.05a List the levels of human structure from the most complex to the simplest.  
   Section: 01.05  
   Topic: Scope of anatomy and physiology

13. Homeostasis and occupying space are both unique characteristics of living things.  

   FALSE

   Accessibility: Keyboard Navigation  
   Blooms Level: 3. Apply  

   Learning Outcome: 01.06a State the characteristics that distinguish living organisms from nonliving objects.  
   Section: 01.06  
   Topic: Scope of anatomy and physiology

14. Positive feedback helps to restore normal function when one of the body's physiological variables gets out of balance.  

   FALSE

   Accessibility: Keyboard Navigation  
   Blooms Level: 2. Understand  
   Gradable: automatic  

   HAPS Objective: B02.02 Compare and contrast positive and negative feedback in terms of the relationship between stimulus and response.  
   HAPS Topic: Module B02 General types of homeostatic mechanisms.  
   Learning Outcome: 01.06e Define positive feedback and give examples of its beneficial and harmful effects.  
   Section: 01.06  
   Topic: Types of homeostatic mechanisms

15. Negative feedback is a self-amplifying chain of events that tends to produce rapid change in the body.  

   FALSE

   Accessibility: Keyboard Navigation  
   Blooms Level: 2. Understand  
   Gradable: automatic  

   HAPS Objective: B02.02 Compare and contrast positive and negative feedback in terms of the relationship between stimulus and response.  
   HAPS Topic: Module B02 General types of homeostatic mechanisms.  
   Learning Outcome: 01.06d Define negative feedback, give an example of it, and explain its importance to homeostasis.  
   Section: 01.06  
   Topic: Types of homeostatic mechanisms
Anatomists around the world adhere to a lexicon of standard international terms, which stipulates both Latin names and accepted English equivalents.

**TRUE**

Multiple Choice Questions

17. Feeling structures with your fingertips is called ________, whereas tapping on the body and listening for sounds of abnormalities is called ____________.

A. palpation; auscultation  
B. auscultation; percussion  
C. percussion; auscultation  
D. palpation; percussion  
E. percussion; palpation

18. Known as "the father of modern anatomy," ___________ was the first to publish accurate drawings of the body.

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B. Maimonides  
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D. Aristotle  
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19. The most influential medical textbook of the ancient era was written by __________.

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20. Which of these is the best imaging technique for routinely examining the anatomical development of a fetus?

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21. The terms physics, physiology, and physician come from a term that __________ proposed to distinguish natural causes from supernatural causes.

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22. Who was a physician to the Roman gladiators, learned by dissection of animals, and saw science as a method of discovery?

A. Hippocrates  
B. Plato  
C. Schwann  
D. Aristotle  
E. Galen  

Learning Outcome: 01.02a Give examples of how modern biomedical science emerged from an era of superstition and authoritarianism.  
Learning Outcome: 01.02b Describe the contributions of some key people who helped to bring about this transformation.  
Section: 01.02  
Topic: Origins of biomedical science

23. The process of using numerous observations to develop general principles and predictions about a specific subject is called __________.

A. experimental design  
B. the deductive method  
C. the inductive method  
D. a hypothesis  
E. statistical testing  

Learning Outcome: 01.03a Describe the inductive and hypothetico-deductive methods of obtaining scientific knowledge.  
Section: 01.03  
Topic: Scientific Method

24. Most people think that ulcers are caused by psychological stress. It was discovered that an acid-resistant bacterium, *Heliobacter pylori*, lives in the lining of the stomach. If these bacteria cause ulcers, then treatment with an antibiotic should reduce ulcers. This line of investigation is an example of __________.

A. hypothetical reasoning  
B. hypothetico-deductive reasoning  
C. the inductive method  
D. experimental design  
E. statistical analysis  

Learning Outcome: 01.03a Describe the inductive and hypothetico-deductive methods of obtaining scientific knowledge.  
Section: 01.03  
Topic: Scientific Method
25. An educated speculation or a possible answer to a question is called a(n) _________.

A. scientific method  
B. theory  
C. law  
D. hypothesis  
E. fact  

Accessibility: Keyboard Navigation  
Blooms Level: 2. Understand  
Gradable: automatic  
Learning Outcome: 01.03c Explain what is meant by hypothesis, fact, law, and theory in science.  
Section: 01.03  
Topic: Scientific Method

26. The use of controls and statistical testing are two aspects of experimental design that help to ensure _________.

A. an adequate sample size  
B. objective and reliable results  
C. experimental bias  
D. psychosomatic effects  
E. treatment groups  

Accessibility: Keyboard Navigation  
Blooms Level: 3. Apply  
Gradable: automatic  
Learning Outcome: 01.03b Describe some aspects of experimental design that help to ensure objective and reliable results.  
Section: 01.03  
Topic: Scientific Method

27. _________ is a process that submits a scientist's ideas to the critical judgment of other specialists in the field before the research is funded or published.

A. Adjudication  
B. Statistical testing  
C. Falsification  
D. Peer review  
E. Hypothetico-deductive testing  

Accessibility: Keyboard Navigation  
Blooms Level: 1. Remember  
Gradable: automatic  
Learning Outcome: 01.03b Describe some aspects of experimental design that help to ensure objective and reliable results.  
Section: 01.03  
Topic: Scientific Method
28. Which of the following would contain the greatest amount of information that scientists consider to be true to the best of their knowledge?

A. A fact  
B. A law of nature  
C. A hypothesis  
D. An equation  
**E. A theory**

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Blooms Level: 3. Apply  
Gradable: automatic  
Learning Outcome: 01.03c Explain what is meant by hypothesis, fact, law, and theory in science.  
Section: 01.03  
Topic: Scientific Method

29. The study of the structure and function of cells is called ____________.  

A. cytology  
B. gross anatomy  
C. exploratory physiology  
D. comparative physiology  
E. radiology

Accessibility: Keyboard Navigation  
Blooms Level: 1. Remember  
Gradable: automatic  
Learning Outcome: 01.01b Describe several ways of studying human anatomy.  
Section: 01.01  
Topic: Scope of anatomy and physiology

30. _______________ established a code of ethics for physicians. He is considered the "father of medicine."

A. Aristotle  
B. Hippocrates  
C. Galen  
D. Vesalius  
E. Hooke

Accessibility: Keyboard Navigation  
Blooms Level: 1. Remember  
Gradable: automatic  
Learning Outcome: 01.02b Describe the contributions of some key people who helped to bring about this transformation.  
Section: 01.02  
Topic: Origins of biomedical science
31. A new drug apparently increases short-term memory. Students were divided randomly into two groups at the beginning of the semester. One group was given the memory pill once a day for the semester, and the other group was given a same-looking pill, but it was just sugar. The sugar pill is termed a(n) _______.

A. controlled pill  
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32. Two groups of people were tested to determine whether garlic lowers blood cholesterol levels. One group was given 800 mg of garlic powder daily for four months and exhibited an average 12% reduction in the blood cholesterol. The other group was not given any garlic and after four months averaged a 3% reduction in cholesterol. The group that was not given the garlic was the _______ group.

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C. Stereoscopic vision  
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37. Stereoscopic vision provides ________.

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A. their inability to regulate body temperature  
B. skeletal adaptations to bipedalism  
C. the arboreal habits of early primates  
D. the conditions of modern civilization  
E. the diet of early species of Homo

39. The species of modern humans is called ________.

A. Homo erectus  
B. Homo sapiens  
C. Homo habilis  
D. early Homo  
E. Australopithecus

40. Most primates are ____________, meaning they live in trees.

A. prehensile  
B. bipedal  
C. cursorial  
D. troglodytic  
E. arboreal
41. An ____________ is composed of two or more tissues types, whereas ____________ are microscopic structures in a cell.

A. organ system; organs  
B. organ system; organelles  
C. organ; organelles  
D. organ; molecules  
E. organelle; molecules

42. Which of the following lists levels of human structure from the most complex to the simplest?

A. Organelle, cell, tissue, organ, organ system  
B. Organ system, organ, cell, tissue, organelle  
C. Organ system, organelle, tissue, cell, organ  
D. Organ system, organ, tissue, cell, organelle  
E. Organ, organ system, tissue, cell, organelle

43. Which of the following lists examples of body structures from the simplest to the most complex?

A. Mitochondrion, connective tissue, protein, stomach, adipocyte (fat cell)  
B. Protein, mitochondrion, adipocyte (fat cell), connective tissue, stomach  
C. Mitochondrion, connective tissue, stomach, protein, adipocyte (fat cell)  
D. Protein, adipocyte (fat cell), stomach, connective tissue, mitochondrion  
E. Protein, stomach, connective tissue, adipocyte (fat cell), mitochondrion
44. A(n) _________ is a group of similar cells and their intercellular materials in a discrete region of an organ performing a specific function.

A. macromolecule
B. organ system
C. organelle
D. organism
E. tissue

45. Taking apart a clock to see how it works is similar to ____________ thinking about human physiology.

A. comparative
B. evolutionary
C. holistic
D. inductive
E. reductionist

46. ____________ approaches understanding of the human body by studying the interactions of its parts.

A. Naturalism
B. Reductionism
C. Vitalism
D. Holism
E. Rationalism
47. _________ is the view that not everything about an organism can be understood or predicted from the knowledge of its components; that is, the whole is greater than the sum of its parts.

A. Naturalism  
B. Reductionism  
C. Holism  
D. Materialism  
E. Science

48. The fact that most of us have five lumbar vertebrae, but some people have six and some have four, is an example of __________ variation among organisms.

A. cellular  
B. holistic  
C. physiological  
D. anatomical  
E. reductionist

49. A surgeon needs to be familiar with different versions of anatomy. This is because of the phenomenon of _____.

A. cellular adaptation  
B. holistic medicine  
C. physiological variation  
D. anatomical variation
50. A hemoglobin level of 12g/dL is normal for an adult female, but low for an adult male. This is an example of _____.

A. cellular adaptation
B. holistic medicine
C. physiological variation
D. anatomical variation

51. ______________ are the simplest body structures considered alive.

A. Organ systems
B. Organs
C. Cells
D. Organelles
E. Molecules

52. All of the following are human organ systems except ___________.

A. skeletal
B. endocrine
C. epidermal
D. reproductive
E. lymphatic
53. All of the following are organs except _________.

A. teeth  
B. the skin  
C. nails  
D. the liver  
E. the digestive system

54. Metabolism is the sum of all __________ __________ change.

A. external; physical  
B. external; chemical  
C. internal; chemical  
D. internal; physical  
E. stimulated; movement

55. We live in an ever-changing environment outside of our body, yet our internal conditions remain relatively stable. This is called __________.

A. homeostasis  
B. metastasis  
C. responsiveness  
D. adaptation  
E. evolution
56. During exercise, one generates excess heat and the body temperature rises. As a response, blood vessels dilate in the skin, warm blood flows closer to the body surface, and heat is lost. This is an example of __________.

A. negative feedback  
B. positive feedback  
C. dynamic equilibrium  
D. integration control  
E. set point adjustment

57. When a woman is giving birth, the head of the baby pushes against her cervix and stimulates the release of the hormone oxytocin. Oxytocin travels in the blood and stimulates the uterus to contract. Labor contractions become more and more intense until the baby is expelled. This is an example of __________.

A. negative feedback  
B. positive feedback  
C. dynamic equilibrium  
D. integration control  
E. set point adjustment

58. Which of the following is most likely to cause disease?

A. Positive feedback  
B. Negative feedback  
C. Homeostasis  
D. Equilibrium  
E. Irritability
59. Blood glucose concentration rises after a meal and stimulates the pancreas to release the hormone insulin. Insulin travels in the blood and stimulates the uptake of glucose by body cells from the bloodstream, thus reducing blood glucose concentration. This is an example of _________.

A. negative feedback  
B. positive feedback  
C. dynamic equilibrium  
D. integration control  
E. set point adjustment

60. Which of the following is not an aspect that could result in physiological variation?

A. Age  
B. Gender  
C. Environment  
D. Physical activity  
E. These are all aspects that can cause physiological variation.

61. The change in size of the bone marrow (where blood cells are produced) as an infant matures is an example of __________, whereas the transformation of blood stem cells into white blood cells is an example of __________.

A. development; differentiation  
B. growth; development  
C. growth; differentiation  
D. differentiation; growth  
E. differentiation; development
62. Three common components of a feedback loop are __________, __________, and __________.

A. stimulus; integrating (control) center; organ system
B. stimulus; receptor; integrating (control) center
C. receptor; integrating (control) center; effector
D. receptor; organ; organ system
E. receptor; integrating (control) center; organ system

63. Negative feedback loops are __________.

A. homeostatic mechanisms
B. not homeostatic mechanisms
C. associated with "vicious circles"
D. self-amplifying cycles
E. usually harmful

64. The prefix hypo- means _______________, whereas hyper- means _______________.

A. front; back
B. right; left
C. inside; outside
D. clear; dark
E. below; above
65. The term *fallopian* tube (uterine tube) is an example of _________.

A. a Latin root used in medical terminology  
B. the use of prefixes to name an anatomical structure  
C. the use of suffixes to name an anatomical structure  
D. an eponym  
E. an acronym

66. Hypercalcemia means _________.

A. elevated calcium levels in blood  
B. lowered calcium levels in bone  
C. elevated sodium levels in blood  
D. elevated calcium levels in bone  
E. lowered calcium levels in the blood

67. The plural of axilla (armpit) is ___________, whereas the plural of appendix is ___________.

A. axillae; appendices  
B. axillides; appendages  
C. axillies; appendi  
D. axilli; appendices
68. The plural of villus (hair) is ____________, whereas the plural of diagnosis is ____________.

A. villuses; diagnosises  
B. villi; diagnoses  
C. villus; diagnosis  
D. villi; diagnosis  
E. villuses; diagnosis

69. The lexicon of standard international anatomical terms is __________.

A. called Nomina Anatomica (NA)  
B. formed from thousands of French word roots  
C. called Terminologia Anatomica (TA)  
D. formed from thousands of English word roots  
E. formed from thousands of Italian word roots

70. The study of normal body structures is called __________.

A. biology  
B. pathology  
C. anatomy  
D. microscopy  
E. physiology
71. The study of how hormones function is called __________.

A. neuroanatomy  
B. neurophysiology  
C. endocrinology  
D. histology  
E. pathophysiology

72. The study of mechanism of disease is called __________.

A. histology  
B. neuroanatomy  
C. pathophysiology  
D. endocrinology  
E. neurophysiology

73. The study of how the body functions is called __________.

A. anatomy  
B. chemistry  
C. physiology  
D. neuroanatomy  
E. histology
74. A physiological ________ is a difference in chemical concentration, electrical charge, physical pressure, temperature, or other variables between one point and another.

A. membrane  
B. gradient  
C. imbalance  
D. feedback loop  
E. barrier

75. Chemicals in a solution can move down a concentration gradient. This means the chemical will move from the area of ________ concentration to the area of ________ concentration.

A. low; high  
B. high; high  
C. low; low  
D. equal; equal  
E. high; low

76. Which of the following is not an example of a physiological gradient?

A. Electrical  
B. Tissue  
C. Pressure  
D. Thermal  
E. Concentration
77. DNA is an example of an __________, whereas PET scan is an example of an __________.

A. eponym; abbreviation  
B. acronym; eponym  
C. eponym; acronym  
D. abbreviation; acronym  
E. acronym; abbreviation

78. Precise spelling is important in anatomy because __________.

A. there are many similar terms in anatomy that refer to different structures  
B. it's easier to remember acronyms when spelled correctly  
C. there are many different ways to spell certain terms  
D. eponyms are difficult to memorize  
E. it's important to practice language skills

79. The ileum is ____________, whereas the ilium is __________.

A. a muscle; a bone  
B. a bone; a muscle  
C. part of the hip bone; part of the small intestine  
D. a bone in the wrist; a muscle of the back  
E. part of the small intestine; part of the hip bone
Ultrastructure refers to the detailed structure to the level of the _____.

A. molecule
B. cell
C. organelle
D. tissue

What type of gradient cause the movement of ions due to both charge and concentration differences?

A. pressure gradient

B. electrochemical gradient
C. thermal gradient
D. concentration gradient
82. If a species of animal evolves over generations to grow a large fan-blade like growth on its back to catch the wind and cool its body, this would be an example of responding to _____.

A. selection pressure  
B. adaptation  
C. natural selection  
D. climate change

83. Modern anatomical language is based on ____ and ____ because individuals speaking these languages made most of the early anatomical discoveries.

A. Greek; Latin  
B. English; Japanese  
C. English; Spanish  
D. Roman; Latin

True / False Questions

84. Lou Gehrig disease is the eponym for amyotropic lateral sclerosis, made famous by the "ice bucket challenge."

TRUE