

## 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, *Helicobacter 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