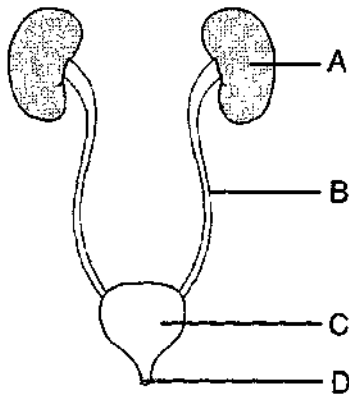


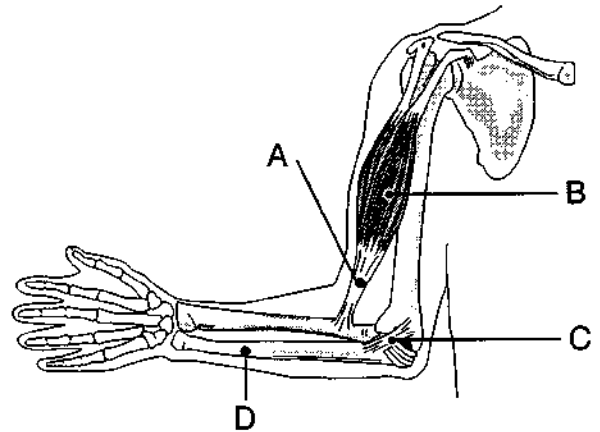
1. Which structures in a human transmit electrochemical messages?
 A) lymphocytes B) neurons
 C) veins D) nephrons
2. A man suffers a head injury in a car accident. For several days afterward, he has difficulty remembering phone numbers. This loss of memory results from damage to the man's
 A) cerebrum B) spinal cord
 C) medulla D) cerebellum
3. The inelastic connective tissue that attaches a muscle in the lower leg to a heel bone is known as
 A) a ligament B) epidermis
 C) a tendon D) cartilage
4. In the diagram of the human urinary system below, which letter indicates a structure responsible for filtering urea out of the bloodstream?



A) A B) B C) C D) D

5. Which human organ is correctly paired with its functional subunits?
 A) lung—alveoli B) brain—neurons
 C) kidney—neurons D) liver—ureters
6. Which sequence correctly indicates the branching pattern of the human respiratory system?
 A) alveoli → bronchioles → trachea → bronchi
 B) trachea → bronchioles → bronchi → alveoli
 C) trachea → bronchi → bronchioles → alveoli
 D) alveoli → trachea → bronchioles → bronchi
7. The fact that large numbers of mitochondria are observed in the tubule cells of nephrons suggests that the nephron is involved in the process of
 A) osmosis B) diffusion
 C) active transport D) passive transport

8. Which portion of the central nervous system coordinates motor activities and aids in maintaining balance?
 A) cerebellum B) spinal cord
 C) cerebrum D) medulla
9. The nephron is the structural unit of the human
 A) intestine B) liver
 C) kidney D) lung
10. Some structures in the human arm are shown in the diagram below.



A ligament is represented by the structure labeled

A) A B) B C) C D) D

11. What is the main function of gas exchange?
 A) To supply water to the body cells
 B) To supply carbon dioxide and remove oxygen from the body
 C) To remove oxygen from the body
 D) To remove carbon dioxide and supply oxygen to the body
12. Which part of the human respiratory system is a thin, moist membranous structure where gas exchange occurs?
 A) trachea B) bronchus
 C) epiglottis D) alveolus
13. Increased perspiration, a higher body temperature, and a rapidly beating heart are all possible responses to a stressful situation. These body responses are most likely a direct result of the interaction of the
 A) digestive and respiratory systems
 B) digestive and endocrine systems
 C) nervous and reproductive systems
 D) nervous and endocrine systems

14. Impulses originating in the part of the brain called the medulla would most directly affect which body structure?

- A) the heart B) a leg muscle
- C) an arm bone D) a ligament

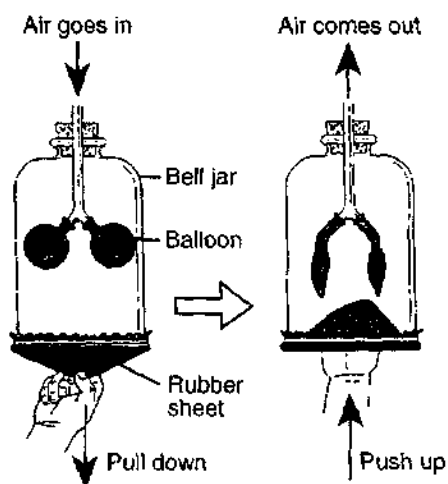
15. When a child runs to his mother after hearing a clap of thunder, the child is using

- A) both the central and the peripheral nervous systems
- B) neither the central nor the peripheral nervous system
- C) the peripheral nervous system, only
- D) the central nervous system, only

16. Producing blood cells and providing anchorage sites for muscles are two functions of

- A) bones B) cartilage
- C) ligaments D) skin

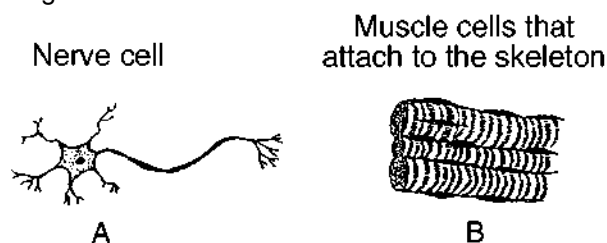
17. The diagram below represents a demonstration of the breathing process in humans. The balloons represent lungs.



The change in the balloons is brought about by

- A) a change in air composition outside the bell jar
- B) an expansion of the balloons, which pulls the rubber sheet into the bell jar
- C) a change in air pressure inside the bell jar
- D) a contraction of the balloons, which forces air into the bell jar

18. Two types of human cells are shown in the diagram below.



Cell A causes the cells at B to contract. This activity would be most useful for

- A) coordinating the functions of organelles
- B) carrying out the process of protein synthesis
- C) digesting food in the small intestine
- D) lifting a book from a bookshelf

19. Which two structures are directly involved in locomotion in humans?

- A) skeletal muscle and bones
- B) cardiac muscle and immovable joints
- C) visceral muscle and fibrous tendons
- D) smooth muscle and ligaments

20. Which statement describes a feedback mechanism involving the human pancreas?

- A) The production of urine allows for excretion of cell waste.
- B) The level of sugar in the blood is affected by the amount of insulin in the blood.
- C) The production of estrogen stimulates the formation of gametes for sexual reproduction.
- D) The level of oxygen in the blood is related to heart rate.

21. A blind student runs his fingers along a page of braille. Another student reads a page printed in a textbook. Both students are able to obtain and process the information most directly as a result of the activities of the

- A) sensory neurons and cerebrum
- B) smooth muscles and medulla
- C) involuntary muscles and cerebellum
- D) interneurons and spinal cord

22. Which of the following is removed by the excretory system?

- A) Cells B) Blood
- C) Excess heat D) Large proteins

23. Which statement best describes the human respiratory system?

- A) Gases diffuse across membranes on both the external and internal surfaces of the body.
- B) Each cell of the human body is in direct contact with the external environment, and gas exchange occurs by diffusion.
- C) The external body surface is kept moist to allow for gas exchange.
- D) It is composed of a network of moist passageways that permit air to flow from the external environment to the lungs.

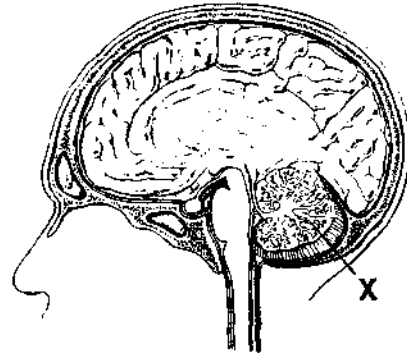
24. A similarity between the nervous system and the endocrine system in humans is that they both

- A) maintain homeostasis
- B) secrete chemicals across synapses
- C) are composed of glands
- D) are composed of neurons

25. Humans breathe more rapidly during exercise than before it because during exercise the blood contains

- A) a decreased number of red blood cells
- B) an increased level of oxygen
- C) an increased level of carbon dioxide
- D) a decreased amount of hemoglobin

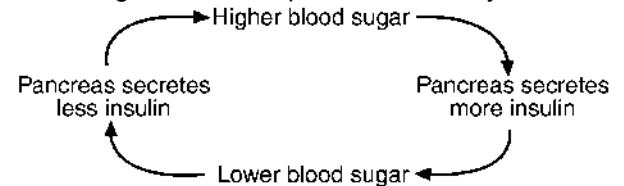
26. The diagram below represents the human brain



The structure labeled X is most directly involved in the

- A) control of breathing and heartbeat
- B) interpretation of sensory impulses
- C) initiation of voluntary actions
- D) maintenance of coordination and balance

27. The diagram below shows the interaction between blood sugar levels and pancreatic activity.



This process is an example of

- A) the digestion of sugar by insulin
- B) an immune system responding to prevent disease
- C) the hormonal regulation of gamete production
- D) a feedback mechanism maintaining homeostasis

28. Which pair of terms is most closely associated with the human endocrine system?

- A) digestive glands and enzymes
- B) ductless glands and hormones
- C) neurons and neurotransmitters
- D) receptors and effectors