chapter 19 Study Guide

Multiple Choice
Identify the letter of the choice that best completes the statement or answers the question.

1. When the nervous system makes you feel hungry or thirsty, what body process is it helping to carry out?
   a. delivering oxygen to cells
   b. maintaining homeostasis
   c. moving the body
   d. supporting the body

2. A change or signal in the environment that can make an organism react is called a(n)
   a. stimulus.
   b. reaction.
   c. impulse.
   d. response.

3. What part of a neuron carries nerve impulses away from the cell body?
   a. axon
   b. synapse
   c. dendrite
   d. nucleus

4. A motor neuron sends an impulse to
   a. a muscle or gland.
   b. a sensory neuron.
   c. an interneuron.
   d. another motor neuron.

5. The thick column of nerve tissue that links the brain to most of the nerves in the peripheral nervous system is the
   a. brain.
   b. spinal cord.
   c. cerebellum.
   d. cornea.

6. What part of the brain controls memory?
   a. cerebrum
   b. brainstem
   c. cerebellum
   d. spinal cord

7. A spinal nerve is made of
   a. sensory neurons only.
   b. interneurons only.
   c. both sensory neurons and motor neurons.
   d. both interneurons and motor neurons.

8. The somatic nervous system controls
   a. artistic ability.
   b. logical thinking
   c. involuntary actions, such as the digestion of food.
   d. voluntary actions, such as turning a television on.
9. An automatic response of the body that occurs very rapidly and without conscious control is called a(n)
   a. stimulant.
   b. interneuron.
   c. reflex.
   d. reaction.

10. In some reflex actions, skeletal muscles contract without the involvement of
    a. motor neurons.
    b. interneurons.
    c. the spinal cord.
    d. the brain.

11. What is the name of the opening through which light enters the eye?
    a. iris
    b. stirrup
    c. pupil
    d. retina

12. Nearsightedness and farsightedness are caused by
    a. a defect in the shape of the eyeball.
    b. a defect in the structure of the retina.
    c. the inability of the iris to change size.
    d. damage to receptor cells in the retina.

13. What produces sound?
    a. light waves
    b. vibrating material
    c. chemicals in the air
    d. rods and cones

14. What structure passes sound vibrations to the cochlea?
    a. eardrum
    b. auditory nerve
    c. stirrup
    d. ear canal

15. The senses of smell and taste both detect
    a. chemicals.
    b. waves.
    c. the semicircular canals.
    d. the optic nerve.

16. Pain is an important sensation, because it
    a. is unpleasant.
    b. helps the immune system function.
    c. can alert the body to danger.
    d. is a depressant.

17. Drugs that slow down the activity of the central nervous system are called
    a. anabolic steroids.
    b. hallucinogens.
    c. stimulants.
    d. depressants.
18. Suppose that you close a window because you notice that rain is falling. Your action in closing the window is a(n)
   a. involuntary reaction.
   b. depressant.
   c. stimulus.
   d. response.

19. If the semicircular canals are damaged, which sense will be affected?
   a. hearing
   b. touch
   c. balance
   d. smell

20. A synapse is the space between
   a. one cell and another cell.
   b. an axon and the cell body.
   c. a dendrite and the cell body.
   d. an axon and the structure that receives the nerve impulse.

21. The brain and spinal cord make up the
   a. central nervous system.
   b. peripheral nervous system.
   c. somatic nervous system.
   d. autonomic nervous system.

22. The three regions that make up the brain include the cerebrum, cerebellum, and
   a. senses
   b. brain stem
   c. spinal cord
   d. retina

23. A bruise-like injury of the brain is called
   a. a stimulant.
   b. a concussion.
   c. an inhalant.
   d. paralysis.

24. Because of the way in which the lens of the eye bends light rays, the image produced by the lens is
   a. black and white.
   b. usually blurred.
   c. right side up.
   d. upside down.

25. Cone cells enable you to see
   a. colors.
   b. black and white.
   c. at night.
   d. nearby objects.

26. Spinal cord injuries can result in
   a. concussion.
   b. paralysis.
   c. a reflex.
   d. farsightedness.
27. Structures in the inner ear help control the sense of
   a. vision.
   b. taste.
   c. smell.
   d. balance.

Completion

Complete each sentence or statement.

28. The traffic light turns green, and the driver steps on the gas pedal to make the car move forward. The green traffic light acted as a(n) ________________ that caused a response in the driver.

29. The type of neurons known as ________________ neurons pick up stimuli from the external or internal environment and convert those stimuli to nerve impulses.

30. The part of the brain that controls balance is the ________________.

31. In order for a nerve impulse to pass from an axon tip to the next structure, it must cross a space called a(n) ________________.

32. Each specific ________________ organ picks up a different kind of information about the environment.

33. The ________________ of the eye bends light rays and focuses them.

34. Sound waves travel down the ear canal and strike the ________________, causing it to vibrate and to pass the vibrations on to small bones in the middle ear.

35. The ________________ is the organ associated with the sense of touch.

36. The junction where one neuron can transfer an impulse to another structure is called a(n) ________________.

37. Eyes convert light into ________________ that travel through the optic nerves to the brain.

38. In the part of the inner ear called the ________________, receptors convert sound vibrations into nerve impulses.

39. A muscle contracts in response to an impulse carried by the type of neuron known as a(n) ________________ neuron.

40. The peripheral nervous system consists of ________________ that link the central nervous system with all parts of the body.

41. One function of the nervous system is to maintain ________________, or stability within the body.

42. The flavor of food is influenced by the senses of smell and ________________.

43. If you accidentally touch a hot pan, you immediately jerk your hand away without thinking, before you even feel pain. This type of response is known as a(n) ________________.
44. What part of the brain is indicated by A? Identify three functions of structure A.

45. What part of the brain is indicated by B? What is its function?

46. Explain how parts A and B work together to enable a skater to glide smoothly across the ice.

47. What part of the brain is indicated by D? What is its function?

48. What is the role of the brain in enabling you to hear? What part of the brain — A, B, C, or D — is involved in hearing?

49. What part of the central nervous system is indicated by C? What is its function?
Use the diagram to answer each question.

The Eye

50. Identify structure A and describe its function.
51. Identify structures D and F. How are these structures related to each other?
52. Identify structure B. Explain what would happen if this structure were damaged.
53. Identify structure E and describe its function.
54. Identify structure C and describe its function.
55. When images focus in front of structure C, what condition results? How does this condition affect people's vision?

Essay

56. Describe the process by which a person hears a sound. Begin with sound waves entering the ear and end with nerve impulses reaching the brain.
57. Name the two divisions of the peripheral nervous system and explain the difference between the functions of the two divisions.
58. State the three main parts of a neuron and describe how an impulse travels through a neuron.
59. Describe two actions that help prevent injury to the brain and spinal cord.
60. Explain what farsightedness is and what causes it.
61. To what stimuli do the nose and taste buds respond?