

## Chapter 02 The Systems of the Body

### Multiple Choice Questions

1. (p. 15) \_\_\_\_\_ fibers provide input to the brain and spinal cord by carrying signals from receptors.

- A. Motor nerve
- B. Sensory nerve**
- C. Afferent
- D. Bast

*Level: Factual*

2. (p. 15) The somatic nervous system connects:

- A. the small intestine to the pancreas, and ensures the regulation of enzymes in the pancreas.
- B. the blood vessels to the lymph nodes to help in the formation of lymphocytes.
- C. nerve fibers to voluntary muscles, and provides the brain with feedback about its movement.**
- D. the central nervous system to all the internal organs that cannot be voluntarily controlled.

*Level: Factual*

3. (p. 15) The \_\_\_\_\_ nervous system helps to restore the body to a normal state after an emergency has passed.

- A. central
- B. sympathetic
- C. parasympathetic**
- D. somatic

*Level: Factual*

4. (p. 16) The \_\_\_\_\_ coordinates voluntary muscle movement, the maintenance of balance and equilibrium, and the maintenance of muscle tone and posture.

- A. cerebral cortex
- B. cerebellum**
- C. pons
- D. medulla

*Level: Factual*

5. (p. 16) Damage to the cerebellum is associated with:

- A. loss of muscle tone, and disturbances in posture.**
- B. alterations in the rate of breathing.
- C. reduced blood flow to the left and right atriums.
- D. hypersecretion of hydrochloric acid.

*Level: Factual*

6. (p. 16) The \_\_\_\_\_ is responsible for the coordination of visual and auditory reflexes.

- A. thalamus
- B. hindbrain
- C. midbrain**
- D. hypothalamus

*Level: Factual*

7. (p. 16) Which of the following is a function of the hypothalamus?

- A. It serves as a link between the hindbrain and the midbrain, and helps control respiration.
- B. It is responsible for the regulation of heart rate, blood pressure, and respiration.
- C. It assists in the recognition of sensory stimuli, and the relay of sensory impulses to the cerebral cortex.
- D. It helps transit thoughts generated in the cerebral cortex, and assess their impact on internal organs.**

*Level: Conceptual*

8. (p. 16) The \_\_\_\_\_ lobe contains the cortical areas which are responsible for auditory and olfactory impulses.

- A.** temporal
- B. occipital
- C. parietal
- D. frontal

*Level: Factual*

9. (p. 17) Epinephrine and norepinephrine are together termed as \_\_\_\_\_.

- A. acids
- B.** catecholamines
- C. platelets
- D. enzymes

*Level: Factual*

10. (p. 17) Which of the following bodily changes results from the release of catecholamines?

- A. Decreased heart rate
- B. Decrease in the amount of sweat produced
- C.** Increased rate of respiration
- D. Increase in the frequency of urination

*Level: Conceptual*

11. (p. 18) \_\_\_\_\_ is a chronic, nonprogressive disorder of the nervous system that is marked by the lack of muscle control.

- A. Epilepsy
- B. Parkinson's disease
- C. Multiple sclerosis
- D.** Cerebral palsy

*Level: Factual*

12. (p. 18) The gene for \_\_\_\_\_ disease has been identified by a test, which also roughly predicts the age when one will succumb to the disease.

- A. paraplegia
- B. Parkinson's
- C. epilepsy
- D. Huntington's**

*Level: Factual*

13. (p. 18) \_\_\_\_\_ is the paralysis of all four extremities, and the trunk of the body which occurs when the upper portion of the spinal cord is severed.

- A. Epilepsy
- B. Quadriplegia**
- C. Polio
- D. Paraplegia

*Level: Factual*

14. (p. 19) The posterior pituitary lobe produces \_\_\_\_\_ which controls contractions during labor and lactation.

- A. oxytocin**
- B. leptin
- C. ghrelin
- D. serotonin

*Level: Factual*

15. (p. 19) The \_\_\_\_\_ glands are located on top of each of the kidneys.

- A. pineal
- B. pituitary
- C. thyroid
- D. adrenal**

*Level: Factual*

16. (p. 19) Which of the following is commonly known as the disease of lifestyle?

- A. Dementia
- B. Type II diabetes**
- C. Type I diabetes
- D. Polio

*Level: Conceptual*

17. (p. 20) Which of the following functions is performed by the adrenal cortex in response to stress?

- A. There is a deregulation of sodium retention.
- B. The formation and inflammation of antibodies is encouraged.
- C. There is a decrease in the amount of energy stored in the body.
- D. There is an increase in protein and fat mobilization.**

*Level: Conceptual*

18. (p. 21) The right atrium and ventricle pump blood back to the lungs via the \_\_\_\_\_.

- A. mitral valve**
- B. capillaries
- C. aorta
- D. pulmonary artery

*Level: Factual*

19. (p. 21) \_\_\_\_\_ occurs when the heart has insufficient supply of oxygen, or adequate removal of carbon dioxide and other waste products.

- A. Angina pectoris**
- B. Myocardial infarction
- C. Arrhythmia
- D. Ischemia

*Level: Factual*

20. (p. 21) \_\_\_\_\_ occurs when a clot has developed in a coronary vessel, and blocks the flow of blood to the heart.

- A.** Myocardial infarction
- B. Angina pectoris
- C. Ischemia
- D. Glioblastoma

*Level: Factual*

21. (p. 22) Which of the following is a clinical manifestation of atherosclerosis?

- A. Lymphoma
- B. Lupus
- C.** Ischemia
- D. Appendicitis

*Level: Conceptual*

22. (p. 22) \_\_\_\_\_ fever is a bacterial infection that originates in the connective tissue, and can potentially affect the functioning of the heart valves.

- A. Pel-Ebstein
- B. Hay
- C. Yellow
- D.** Rheumatic

*Level: Factual*

23. (p. 22) An adult's body approximately contains \_\_\_\_\_ liters of blood.

- A. 9
- B. 7
- C. 3
- D.** 5

*Level: Factual*

24. (p. 22) Which of the following blood-forming cells produces platelets?

- A. Myeloblasts
- B. Megakaryocytes**
- C. Erythroblasts
- D. Lymphoblasts

*Level: Conceptual*

25. (p. 22) \_\_\_\_\_ results from below-normal numbers of red blood cells which interferes with its transportation.

- A. Peptic ulcer
- B. Anemia**
- C. Lupus
- D. Urticaria

*Level: Factual*

26. (p. 23) The \_\_\_\_\_ is a muscular tube that divides at its lower end into two branches called the primary bronchi.

- A. alveoli
- B. larynx
- C. pharynx
- D. trachea**

*Level: Factual*

27. (p. 23) The exchange of oxygen and carbon dioxide during respiration occurs between the:

- A. primary bronchi and the secondary bronchi.
- B. alveoli and the capillaries.**
- C. alveoli and the arteries.
- D. bronchioles and the arteries.

*Level: Factual*

28. (p. 23) Respiratory movements are controlled by a respiratory center in the \_\_\_\_\_.  
A. cerebellum  
B. cerebral cortex  
**C. medulla**  
D. pons

*Level: Factual*

29. (p. 24) \_\_\_\_\_ is a seasonal allergic reaction to foreign bodies that enter the lungs.  
A. Pleurisy  
B. Pneumonia  
C. Asthma  
**D. Hay fever**

*Level: Factual*

30. (p. 24) \_\_\_\_\_ accounts for 80 percent of all cases of chronic obstructive pulmonary disease.  
A. Hypertension  
B. Obesity  
**C. Smoking**  
D. Alcoholism

*Level: Factual*

31. (p. 24) \_\_\_\_\_ is a secondary infection that may occur as a complication of other disorders, such as a severe cold or flu.  
**A. Bronchial pneumonia**  
B. Asthma  
C. Meningitis  
D. Pleurisy

*Level: Factual*



32. (p. 25) The unidirectional muscular movement of a bolus through the esophagus, toward the stomach is known as \_\_\_\_\_.

- A. mononucleosis
- B. metastasis
- C. peristalsis**
- D. phagocytosis

*Level: Factual*

33. (p. 25) A critical function of the pancreas is the production of \_\_\_\_\_.

- A. leptin
- B. insulin**
- C. pepsin
- D. oxytocin

*Level: Factual*

34. (p. 25) Bile is stored in the \_\_\_\_\_, and is secreted into the duodenum when necessary.

- A. gallbladder**
- B. pancreas
- C. appendix
- D. rectum

*Level: Factual*

35. (p. 26) \_\_\_\_\_ is an open sore in the lining of the stomach or the duodenum.

- A. Hepatitis
- B. Gastroenteritis
- C. Peptic ulcer**
- D. Appendicitis

*Level: Factual*

36. (p. 26) Which of the following types of hepatitis is also known as serum hepatitis?
- A. Hepatitis A
  - B. Hepatitis B**
  - C. Hepatitis C
  - D. Hepatitis E

*Level: Conceptual*

37. (p. 27) The smooth muscle tissue which acts as a reservoir for urine is called a \_\_\_\_\_.
- A. urethra
  - B. kidney
  - C. ureter
  - D. urinary bladder**

*Level: Factual*

38. (p. 27) One of the chief functions of the kidneys is to:
- A. control the growth and secretion of the cortex region of the adrenal gland.
  - B. control the chemical composition of blood.
  - C. produce various gastric secretions.
  - D. control the water balance in the body.**

*Level: Factual*

39. (p. 28) Estrogen is responsible for:
- A. the endometrial lining to move into the fallopian tube.
  - B. the occurrence of menopause.
  - C. preparing the body for pregnancy.
  - D. the development of secondary sex characteristics in females.**

*Level: Factual*

40. (p. 28) \_\_\_\_\_ is produced by the interstitial cells of the testes under the control of the anterior pituitary lobe.

- A. Aldosterone
- B. Testosterone**
- C. Progesterone
- D. Estrogen

*Level: Factual*

41. (p. 29) \_\_\_\_\_ cancer is known to be the most lethal cancer that affects women.

- A. Vaginal
- B. Ovarian**
- C. Endometrial
- D. Cervical

*Level: Factual*

42. (p. 29) Some women usually choose to undergo \_\_\_\_\_ therapy to deal with the noxious symptoms that occur during menopause.

- A. aversion
- B. hormone**
- C. meso
- D. gene

*Level: Factual*

43. (p. 29) Genetic material for inheritance lies in the nucleus of the cell in the form of \_\_\_\_\_ chromosomes.

- A. 53
- B. 36
- C. 23
- D. 46**

*Level: Factual*

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44. (p. 30) Which of the following diseases has a genetic basis?
- A. Hay fever
  - B. Paraplegia
  - C. Multiple sclerosis**
  - D. Cerebral palsy

*Level: Conceptual*

45. (p. 31) \_\_\_\_\_ is an example of an environmentally transmitted disease.
- A. Shigellosis
  - B. Yellow fever
  - C. Herpes
  - D. Influenza**

*Level: Factual*

46. (p. 31) Toxigenicity is the ability to:
- A. produce poisons which invade other parts of the body.**
  - B. resist the body's defenses.
  - C. produce white blood cells in the body.
  - D. reduce the risk of potential genetic disorders.

*Level: Factual*

47. (p. 31) A localized infection:
- A. is confined to a particular site in the human body and does not spread.**
  - B. is confined to a particular area, and sends toxins to other parts of the body.
  - C. rarely affects the human body.
  - D. affects several different areas or body systems.

*Level: Factual*

48. (p. 32) The largest group of cells involved in natural immunity is known as \_\_\_\_\_.
- A. lymphocytes
  - B. oocytes
  - C. osteocytes
  - D. granulocytes**

*Level: Factual*

49. (p. 32) \_\_\_\_\_ release cytokines that lead to inflammation and fever, and promote wound healing.
- A. Macrophages**
  - B. Lymphoblasts
  - C. Neutrophils
  - D. Megakaryocytes

*Level: Factual*

50. (p. 33) \_\_\_\_\_ prevent the passage of microbes from one section of the body to another.
- A. Phagocytosis
  - B. Anatomical barriers**
  - C. Antimicrobial substances
  - D. Inflammatory responses

*Level: Factual*

51. (p. 33) \_\_\_\_\_ are chemicals produced by the body that kill invading microorganisms.
- A. Antimicrobial substances**
  - B. Phagocytes
  - C. Inflammatory responses
  - D. Anatomical barriers

*Level: Factual*

52. (p. 34) \_\_\_\_\_ cells secrete chemicals that kill invading organisms and infected cells.

- A. Eosinophil
- B. Mast
- C. T**
- D. B

*Level: Factual*

53. (p. 34) Which of the following bodily systems functions as the drainage system of the body?

- A. The immune system
- B. The lymphatic system**
- C. The endocrine system
- D. The respiratory system

*Level: Factual*

54. (p. 35) \_\_\_\_\_ is a malignant lymphoma which involves the progressive, chronic enlargement of the lymph nodes, spleen, and other lymphatic tissue.

- A. Parkinson's disease
- B. Meningitis
- C. Epilepsy
- D. Hodgkin's disease**

*Level: Factual*

55. (p. 35) In an autoimmune disease:

- A. the treatment procedure is long-term, but it is easily curable.
- B. the body fails to recognize the existence of a foreign substance until its severity increases.
- C. certain white blood cells ingest microbes causing an infection.
- D. the body recognizes its own tissue as a foreign invader, and produces antibodies to fight it.**

*Level: Factual*

**True / False Questions**

56. (p. 15) Regulation of the autonomic nervous system occurs via the sympathetic nervous system and the parasympathetic nervous system.

**TRUE**

*Level: Factual*

57. (p. 15) The parasympathetic nervous system is activated in individual responses to stress.

**FALSE**

*Level: Factual*

58. (p. 16) The structures of the limbic system play an important role in emotion.

**TRUE**

*Level: Factual*

59. (p. 19) The endocrine system is responsible for fast-acting, short-duration responses to changes in the body.

**FALSE**

*Level: Factual*

60. (p. 21) The two primary clinical manifestations of atherosclerosis are angina pectoris and congestive heart disease.

**FALSE**

*Level: Factual*

61. (p. 26) Hepatitis A is typically transmitted through food and water.

**TRUE**

*Level: Factual*

62. (p. 29) Menopause can be cured definitively by hormone therapy.

**FALSE**

*Level: Factual*

63. (p. 30) There appears to be a genetic contribution to coronary heart diseases and some forms of cancer.

**TRUE**

*Level: Factual*

64. (p. 33) Antigens are proteins produced in response to stimulation by antibodies.

**FALSE**

*Level: Factual*

65. (p. 35) Compared to women, men are at a greater risk of contracting autoimmune diseases.

**FALSE**

*Level: Factual*



## Essay Questions

66. (p. 17) Describe the two most common disorders of the nervous system.

The two most common forms of neurological dysfunction are epilepsy and Parkinson's disease. Epilepsy is a disease of the central nervous system. It is often idiopathic, which means that no specific cause for the symptoms can be identified. Epilepsy is marked by seizures which range from barely noticeable to violent convulsions, accompanied by irregular breathing, and loss of consciousness. Epilepsy cannot be cured, but it can often be controlled through medication and behavioral interventions designed to manage stress. Patients with Parkinson's disease have progressive degeneration of the basal ganglia, which is a group of nuclei in the brain that control smooth motor coordination. The result of this deterioration is tremors, rigidity, and slowness of movement. Parkinson's patients may be treated with medication, but large doses can cause undesirable side effects.

*Level: Factual*

67. (p. 20) Describe the structure of the cardiovascular system. Include the internal and external factors influencing heart rate, and its impact on the hearts functioning.

The cardiovascular system comprises the heart, blood vessels, and blood; and acts as the transport system of the body. Blood carries oxygen from the lungs to the tissues and carbon dioxide from the tissues to the lungs. Blood also carries nutrients from the digestive tract to the individual cells so that the cells may extract nutrients for growth and energy. The heart functions as a pump, and its pumping action causes the blood to circulate throughout the body. The heart performs its internal functions through regular rhythmic phases of contraction and relaxation known as the cardiac cycle. A number of external factors also influence the rate at which the heart contracts and relaxes. During exercise, emotional excitement, or stress the heart speeds up, and the cardiac cycle is completed in a shorter time.

*Level: Factual*

68. (p. 26) Describe the nature and symptoms of hepatitis. Compare and contrast Hepatitis A and Hepatitis B, and explain its mode of transmission.

Hepatitis means inflammation of the liver which produces swelling, tenderness, and sometimes permanent damage. It remains in the blood causing a yellowing of the skin known as jaundice. Hepatitis A is caused by viruses, and is typically transmitted through food and water. It is often spread by poorly cooked seafood, or through unsanitary preparation and storage of food. Hepatitis B is a more serious form which is also known as serum hepatitis. It is caused by a virus and is transmitted by the transfusion of infected blood, by improperly sterilized needles, through sexual contact, and through mother-to-infant contact. It is a particular risk among intravenous drug users. Its symptoms are similar to those of hepatitis A but are far more serious.

*Level: Factual*

69. (p. 30) Discuss the role of genetic counseling. How can it be used effectively by health psychologists?

Genetic counseling is used in prenatal diagnostic tests that permit the detection of some genetically based disorders, including Tay-Sachs disease, cystic fibrosis, muscular dystrophy, Huntington's disease, and breast cancer. People who have a family history of genetic disorders, those who have already given birth to a child with a genetic disorder, or those who have recurrent reproductive problems, such as multiple miscarriages, often seek such counseling. In some cases, technological advances have made it possible to treat some of these problems before birth through drugs or surgery. Growing evidence suggests that people at risk for treatable disorders benefit from genetic testing, and do not suffer long-term psychological distress. Health psychologists have an important role to play in research and counseling related to genetic risks especially if they can help people modify their risk status and manage their distress.

*Level: Factual*

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70. (p. 32) Compare and contrast nonspecific and specific immune mechanisms. Provide an example for each.

The body has a number of responses to invading organisms, some nonspecific and others specific. Nonspecific immune mechanisms are a general set of responses to any kind of infection or disorder. The inflammatory response is an example of a nonspecific immune mechanism. Specific immune mechanisms are always acquired after birth, and they fight particular microorganisms and their toxins. Antibodies that develop with the help of foreign antigens are an example of a specific immune mechanism.

*Level: Applied*