Virus and Immune System Review

Directions: Write your answers on a separate piece of paper.

1. Why does a cut in the skin threaten the body’s nonspecific defenses against disease?
   a. If a cut bleeds, disease-fighting phagocytes escape from the body.
   b. A cut prevents the inflammatory response from occurring.
   c. A cut provides an entryway into the body for pathogens.
   d. A cut disables humoral immunity.

2. The virus is considered an exception to the cell theory because the
   a. virus contains genetic material but no organelles.
   b. mitochondria of the virus contain genetic material.
   c. chloroplasts of the virus contain genetic material.
   d. virus contains no genetic material and has multiple nuclei.

3. The chemical that causes the allergic response during an asthma attack is
   a. histamine    c. acetylcholine
   b. estrogen.    d. methane.

4. Which response usually occurs after an individual receives a vaccination for the influenza (flu) virus?
   a. Antibodies against the virus form in the blood.
   b. Hormones in the blood inhibit reproduction of the virus.
   c. Antigens from the vaccine deactivate the virus.
   d. Enzymes released from platelets hydrolyze the virus.

5. The first line of defense your body has against infection by foreign organisms is
   a. lymph nodes.   c. white blood cells.
   b. antibodies.    d. the skin.

6. Chemicals produced by virus-infected cells that alert neighboring cells to prepare a defense are called
   a. antibodies.     c. antigens.
   b. interferons.   d. complement proteins.

7. Macrophages and neutrophils defend against pathogens by
   a. punching a hole in the plasma membrane of the pathogen, causing the cell to burst.
   b. secreting lysozyme.
   c. producing antibodies.
   d. phagocytizing pathogens.

8. A substance that causes an immune response is called a(n)
   a. complement.     c. histamine.
   b. antibody.   d. antigen.
9. Passive immunity can be obtained from
   a. white blood cells that fight infection.
   b. an injection of antibodies that recognize invading microbes.
   c. a hormone that boosts the immune response.
   d. an injection of inactivated disease-causing microbes.

10. T and B cells are types of
    a. endocrine cells.  c. lymphocytes.
    b. platelets.    d. complement cells.

11. Your skin is constantly exposed to bacteria and viruses from the air, water, food, and surfaces you contact. The principle reason you are not constantly affected by these organisms is
    a. phagocytes immediately find them and digest them.
    b. antibodies immediately destroy them on contact.
    c. they are quickly swept into the lymphatic system and destroyed in lymph nodes.
    d. the skin and the mucus lining the digestive tract prevent them from entering the body.

12. Which cells are involved in humoral immunity?
    a. macrophages  c. cytotoxic T cells
    b. B cells    d. neutrophils

13. In the human body which of the following is NOT a defense against a foreign substance or organism?
    a. autoimmune reaction  c. production of antibodies
    b. acquired immunity    d. recognition of antigens

14. How does vaccination protect the body against disease?
    a. It suppresses the action of antigens.
    b. It prevents pathogens from entering the body.
    c. It stimulates the production of cytotoxic T cells.
    d. It stimulates the immune system to produce plasma cells that can produce antibodies.

15. People with AIDS may be susceptible to pathogens that are normally relatively harmless because
    a. the HIV virus destroys important cells in the immune system.
    b. the HIV virus is not affected by the defenses of the immune system.
    c. infection with HIV prevents the digestive system from absorbing nutrients and thus weakens the body.
    d. infection with HIV prevents the kidneys from filtering wastes from the blood.
16. Your lymphatic system fights infection and
   a. delivers food and water to tissues.
   b. maintains high blood pressure.
   c. carries secretions from glands.
   d. delivers fluid to the circulatory system.

17. Which of the following triggers the inflammatory response?
   a. Accumulation of phagocytes in an injured area.
   b. Release of interferon by infected cells.
   c. Increased blood flow in an infected or injured area.
   d. Release of chemicals such as histamine by damaged cells.

18. A vaccine contains
   a. white blood cells that fight infection.
   b. antibodies that recognize invading microbes.
   c. inactivated disease-causing microbes.
   d. a hormone that boosts immunity.

19. The process by which a white blood cell engulfs and destroys a bacterium is called
   a. phagocytosis.
   b. pinocytosis.
   c. exocytosis.
   d. prostaglandins.

20. By destroying helper T cells, HIV reduces the body’s ability to
   a. kill invading pathogens directly.
   b. Produce interferons.
   c. Trap invading pathogens.
   d. Activate cytotoxic T cells and B cells.

21. Which of the following is true about antibodies
   a. They are produced by B cells.
   b. They function against bacteria but not viruses.
   c. They are produced by T cells.
   d. The provide a defense against pathogens living inside cells.

22. A girl became ill with German measles and recovered. A year later, she was exposed
to the disease again but did not become ill. Which is the most probable explanation
for her failure to develop measles after the second exposure?
   a. Specific antibodies were produces as a result of the first illness.
   b. Her red blood cell count was elevated.
   c. The disease virus had mutated into a different strain.
   d. Antibiotics taken during the initial illness were still at work.

23. A virus is unlike an organism in that the virus
   a. contains DNA.
   b. contains RNA.
   c. reproduces in a short time.
   d. cannot reproduce outside a living cell.
24. Phagocytes are
   a. a type of red blood cell that fights disease.
   b. a type of white blood cell that destroys pathogens.
   c. involved in the clotting of blood.
   d. involved in the humoral immune response.

25. If a person’s immune system cannot function properly, which of the following is most likely to result?
   a. Diseases that are usually mild can have a serious effect on the person’s body.
   b. The person will not respond to cancer chemotherapy.
   c. The person’s red blood cells will not be able to carry oxygen.
   d. Pathogens will be able to enter the person’s body more easily than before.

26. An antibody is a
   a. protein that attaches to an antigen.
   b. foreign substance or organism.
   c. white blood cell that attacks invading bacteria or viruses.
   d. large carbohydrate molecule that helps defend the body.

27. What is the function of phagocytes?
   a. They engulf and destroy bacteria.
   b. They produce antibodies.
   c. They form a barrier against pathogens.
   d. They bond to antigens and develop into plasma cells.

28. Vaccination is effective because it
   a. permanently raises the number of white blood cells in the body.
   b. creates memory cells that produce specific antibodies.
   c. causes the disease, which you will only get one time in your life.
   d. consists of particles that stay in the body permanently and destroy viruses.

29. The best way to deal with a potentially fatal disease caused by a virus is to
   a. treat it with antibiotics.
   b. let the disease run its course so the person builds up antibodies.
   c. produce a vaccine that will build antibodies without causing the disease.
   d. try to destroy the virus in the environment before it infects anyone.

30. Viruses are similar to prokaryotic cells because they
   a. can extract energy from food molecules.
   b. carry genetic information in nucleic acids.
   c. actively transport materials across a cell membrane.
   d. can reproduce independently of other organisms.
31. Explain how vaccination allows you to develop immunity to a disease without becoming ill. Include in your explanation the primary and secondary immune responses.

32. Compare humoral and cell-mediated immunity. In your comparison, discuss types of lymphocytes involved, roles of antibodies in the immune response, where invaders are attacked, and methods used to destroy invaders.

33. The virus that causes chickenpox can disappear for years and then reappear in a line of painful sores where a nerve cell passes through the skin. How can viruses go away and then reappear like this? Where are the viruses during the intervening period of time?