

Non-Specific Host defenses

study guide

- 1) Lysozyme type enzymes have bactericidal properties. These enzymes are most effective against gram (+) or gram (-) type bacterial and why? (3 pts)

B) Where are Lysozymes found? (4 pts)
- 2) Which bacteria appears to be resistant to the highly acidic properties of the human stomach? (2pts)
- 3) Describe the function of blood borne transferrin proteins (2 pts)
- 4) Describe competitive exclusion (4 pts)
- 5) Provide five opportunistic pathogens that may affect the health of a person (5 pts)
- 6) What are the major functions of the lymphatic system? (6 pts)
- 7) Name and describe the percentages and function of the five different types of leukocytic cells found within the human blood system (10 pts)
- 8) Which leukocytic cell exhibits the ability to leave the blood system to fight disease causing microbial agents. (4 pts)
- 9) What are cytokines and how do they function? (4pts)
- 10) Where are the group of cells called the Peyer's Patches located and what is its function (4 pts)

B) What is the function of a lymph node and where are they found? (4 pts)

C) Where is the thymus gland located and describe its function. (4 pts)

D) Know the various associated lymphoid tissues (6 pts)
- 11) List and describe seven mechanical factors that prevent bacterial invasion (21 pts)
- 12) What factors can predispose an individual to infection (4 pts)
- 13) Some macrophages are called fixed macrophages.
Name and list the location of the various macrophages found in the human body (6 pts)
- 14) List and describe the five mechanism of phagocytosis (10 pts)
- 15) Describe the process of opsonization (4 pts)
- 16) Phagolysosome take from 10 to 30 minutes to kill a bacteria. What are various methods used to kill and digest a microbe (8 pts)
- 17) How can microbes avoid phagocytosis? (6 pts)

- 18) What are the five signs and symptoms of inflammation (5 pts)
- 19) Discuss the difference between acute and chronic inflammation (6 pts)
- 20) How is vasodilation important to the inflammation process? (4 pts)
- 21) Why is there pain associated with inflammation (6 pts)
- 22) What biochemical substance may intensify the effects of histamine and kinins hormones (4 pts)
- 23) Describe diapedesis (4 pts)

B) What is chemotaxis? (2 pts)
- 24) What is vasodilation? B) And what causes vasodilation (4 pts)
- 25) What occurs during the final stage of inflammation? (2 pts)
- 26) Describe the fever response of the human body to lipopolysaccharide endotoxins. (12 pts)
- 27) Why is fever consider “good” for the human body? (6 pt)
- 28) List and describe the six side affects to fever (12 pts)
- 29) What role does C3b play in phagocytosis of a microbe (4pts)
- 30) Describe the 2 function of C5a compliment protein (8 pts)
- 31) Why are Gram (-) bacteria more susceptible to compliment protein cytolysis than Gram (+) bacteria? (2 pts)
- 32) How do Gram (+) cocci effect the complement system? (2 pts)
- 33) What strategy do bacteria use to avoid the complement system
- 34) What are the 3 types of human interferon and their functions? (9 pts).
- 35) Identify at least one mechanical and one chemical factor that prevent microbes from entering the body through each of the following. (12 pts)

A) Skin: _____ B) eyes: _____
C) digestive tract: _____ D) respiratory tract: _____
E) Urinary tract: _____ F) Reproductive tract: _____
- 36) What role does Interferon play the second line of human defense against microbes? (4 pts)
- 37) Catagorize and describe three types of interferons compounds used in the second line of human defense against microbes (9 pts)

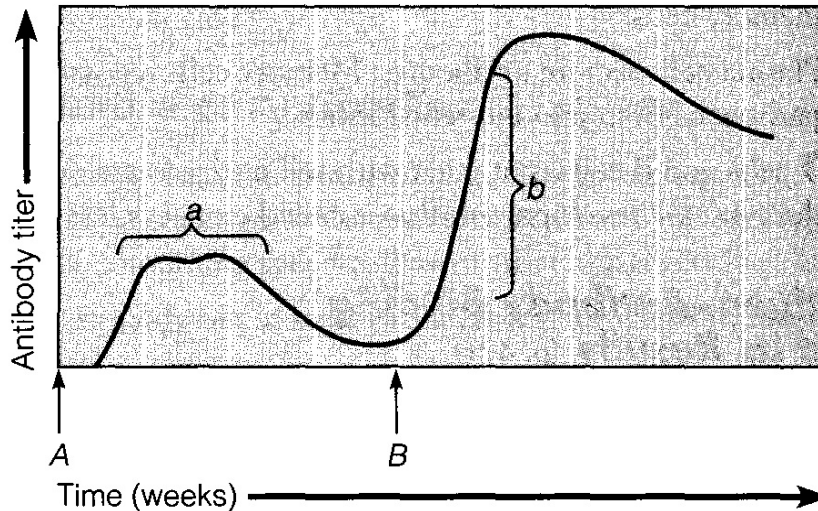
Specific Immunity and Immunization systems

1. A) Define cellular mediated immunity. (4 pts)

B) Define humoral immunity (4 pts)
2. Contrast the terms in the following pairs: (14 pts)
 - a. innate and acquired immunity
 - b. humoral and cell-mediated immunity
 - c. active and passive immunity
 - d. TH₁ and TH₂ cells
 - e. natural and artificial immunity
 - f. T-dependent and T-independent antigens
 - g. CD₄ and CD₈
3. What are four major functions of a recognition receptor? (8 pts)
4. Where would one expect to find Class II MHC receptors?
B) Where would one expect to find Class I MHC receptors (6 pts)
5. Classify the following examples of immunity as naturally acquired active immunity, naturally acquired passive immunity, artificially acquired active immunity, or artificially acquired passive immunity: (8 pts)
 - a. Immunity following the injection of diphtheria toxoid
 - b. Immunity following an infection
 - c. A newborn's immunity to yellow fever
 - d. Immunity following an injection of antirabies serum
6. What are the five classes of immunoglobulin proteins and where should you expect to find each (15 pts)
7. List and describe the six (6) protective mechanisms of binding antibodies to antigens (18 pts)
8. Explain an antigen. Distinguish an antigen and what is a hapten. (4 pts)
9. What are 5 types of bio-chemical compounds that will stimulate an antigenic response? (5 pts)
10. A) What is an antibody.

B) How does an antibody function?
 - 1) What lymphocytic cells bind to an antibody and at what end of the antibody binds these lymphocytic cells
C) Diagram the structure of a typical antibody; label the heavy chain, light chain, and constant, variable, and Fc regions. (18 pts)
11. What are three cell types that can provide an antigenic processing complex (APC)? (6 pts)

12. Discuss the clonal selection mechanism. (4 pts)
13. By means of a diagram, explain the role of T cells and B cells in immunity. (6 pts)
14. What are cytokines? When and where are these chemicals used (6 pts)



15. a. In the graph above, at time A, the host was injected with tetanus toxoid. At time B, the host was given a booster dose.
- B. Explain the meaning of the areas of the curve marked a and b,.
- C. Identify in the graph the antibody response of this same individual to exposure to a new antigen indicated at time B.
- D. Describe the **anamnestic response**.
16. How do antibodies antigens interact? (3 pts)
17. How does a T cell recognize an antigen? (3 pts)
18. How does MHC II and CD₄ receptors interact?
B) How does MHC I and CD₈ receptors interact? (8 pts)
- 18 What are Cytotoxic and natural killer (NK) cells? (2 pts)
19. Cytotoxic and natural killer (NK) cells help to prevent cancer cell growth. Explain. (4 pts)
20. How would each of the following prevent infection? (4 pts)
 - a. antibodies against *Neisseria gonorrhoeae* fimbriae
 - b. antibodies against host cell mannose

21. Explain why a person who recovers from a disease can attend others with the disease without fear of contracting the disease. (4 pts)
22. What is the mechanistic function of a RNA_i molecule? (4 pts)
23. Pooled human immune serum globulin is sometimes administered to a patient after exposure to hepatitis A. What is human immune serum globulin? What type of immunity might this confer on the patient? (4 pts)
24. What is cellular apoptosis and how does the HIV virus effect apoptosis? (4 pts)

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