STUDY GUIDE – Virus, Bacteria, and Infectious Diseases

Terms to Know

<table>
<thead>
<tr>
<th>Virus</th>
<th>Conjugation</th>
<th>Heterotroph</th>
<th>Infectious disease</th>
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<tr>
<td>Bacteriophage</td>
<td>Obligate Anaerobe</td>
<td>Autotroph</td>
<td>Pathogen</td>
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<tr>
<td>Capsid</td>
<td>Obligate Aerobe</td>
<td>Prokaryote</td>
<td>Antigen</td>
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<td>Lytic cycle</td>
<td>Endospore</td>
<td>Zoonosis</td>
<td>Antibody</td>
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<tr>
<td>Lysogenic cycle</td>
<td>Prophage</td>
<td>Vector</td>
<td>Immunity</td>
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<tr>
<td>Retrovirus</td>
<td>Superbug</td>
<td>Antibiotic</td>
<td>Vaccination</td>
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<td>Binary fission</td>
<td>Emerging Diseases</td>
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1. What is a virus composed of? Describe what a virus looks like (size, shapes, structure, etc…)

2. Do biologists consider viruses living? Why or why not?

3. What is a retrovirus? Give an example.

4. Describe the lytic cycle.

5. Explain how a virus can spread in a bacterial population during the lysogenic phase of infection.

6. What are 3 ways to protect yourself from viral infections?

7. Describe how a vaccine works.

8. How are bacteria different from viruses?

9. Describe the two ways bacteria can reproduce.
10. How can bacteria be “good” and “bad”?

11. Identify 2 ways people control bacterial growth.

12. Describe why scientists can grow bacteria in a petri dish with agar (food) and not viruses.

13. Define PATHOGEN: _____________________________________________________________
   Give two examples of a pathogen: __________________________________________________

14. Describe 4 ways pathogens/diseases are spread.

15. Compare specific and nonspecific defenses.

16. Complete the following concept map.

   ![Concept Map]
   
   Defense Against Infection
   
   Specific Defenses
   
   First Line
   
   Immune System in action
17. Match the following terms with the correct description of nonspecific defenses.

**Terms:** cilia, fever, inflammatory response, skin, interferon

<table>
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<tr>
<th>Term</th>
<th>Description</th>
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<td>Traps pathogens in the nose and throat</td>
<td>Increases body temperature to slow the growth of pathogens</td>
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<td>Inhibits the making of viral proteins and helps block viral replication</td>
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<td>Push pathogens away from lungs</td>
<td>Barrier that stops pathogens from entering the body</td>
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<td>Increases flow of white blood cells and fluids to an area</td>
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18. What are antibodies? Describe their form and function.

19. What are antigens and their role in immunity?

20. Describe the difference between the humoral immune response and the cellular immune response.

21. How does the secondary response to an antigen differ from the primary response to an antigen?

22. It is not always easy to determine if a patient has a bacterial infection or a viral infection. How could this contribute to the misuse of medications?

23. Compare active immunity and passive immunity.

24. Discuss 3 ways to prevent the spread of infectious diseases.

25. a. What is an emerging disease? ____________________________________________

   b. Describe why we are seeing a re-emergence of diseases that were once completely gone.