

Microbiology

Final Exam Study Guide

Part 1: Modules 1-6

- 1) Describe the ways in which resistance to antimicrobials drugs spreads in bacterial organisms.
- 2) Create a chart of large antimicrobial drug classes, including the antivirals. Include drug examples and describe their mechanism of action.
- 3) Describe the basic bacterial morphologies (shapes).
- 4) Describe the discoveries of the prominent scientists during the Golden Age of Microbiology.
- 5) Describe general characteristics and differences between the following: bacteria, archaea, protozoa, viruses, fungi
- 6) Describe why some organisms create endospores and why this is beneficial to the microbe?
- 7) Describe how viruses infect cells and how they perpetuate replication.
- 8) Describe the stages of disease (sequence of the disease process).
- 9) Describe the ways in which infectious diseases can be classified.
- 10) Define the word "axenic."
- 11) What is unique about the cells walls of gram-negative bacteria vs gram-positive bacteria?
- 12) Outline the various types of staining techniques and describe how these are useful in a medical laboratory.
- 13) Describe endocytosis and exocytosis.
- 14) What is a slime layer?
- 15) Define the term "quorum sensing."
- 16) List and describe the various classification types based on oxygen, CO₂, pressure, and temperature requirements for the survival of various types of organisms (i.e., aerobe, anaerobe, capnophile, microaerophile, facultative anaerobe, hyperthermophile etc...)
- 17) Why are streak plates used in the lab?
- 18) Describe the processes involved in protein synthesis.
- 19) Define: transcription, translation
- 20) Describe: transduction, transformation, conjugation
- 21) Describe: disinfection, sterilization, antiseptics, and degerming
- 22) Describe how dessication influences microbial growth.
- 23) Define: aseptic
- 24) How do refrigeration, freezing, and the application of very high heat influence microbial growth?

Part 2: Modules 7-10

1. Describe the role of adjuvants in vaccines.
2. Describe how attenuated and killed vaccines work to stimulate immunity.
3. Review the CDC recommended vaccine schedule.

4. Describe the clinical approach that is recommended following a bite from a potentially rabid animal.
5. Define: immunology
6. Define: serology
7. Describe the roles and functions of each of the 5 subclasses of antibodies.
8. Define: opportunistic infection
9. Describe specific vs. nonspecific immune defenses.
10. Review the infectious disease study charts that you may have made each week for the infectious diseases associated with each system.
11. Study the various agents responsible for meningitis. Which are most likely to cause meningitis in various age groups? (e.g., infancy vs. elderly)
12. Review the prion diseases.
13. Define: axenic
14. Define: schizogony
15. Define: teratogen
16. Describe the difference between foodborne infection and foodborne intoxication (food poisoning).
17. Describe the subtypes of hepatitis.
18. Describe the stages of syphilis.
19. Study each of the presentations posted in Week 11. A number of these diseases are covered on the exam.