Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Study Guide for Bacteria, Viruses and Protists Test

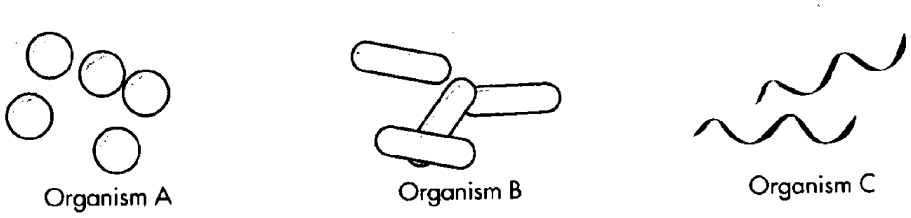
Test Covers: Chapters 20 and 21
What should you know?
Know the structure and function of the bacteria, viruses and protists.
Know the difference between the kingdoms: Eubacteria, Archaebacteria and Protista.
Know the difference between the domains: prokaryote and eukaryote.
Know the difference between how bacteria, viruses and protists reproduce.
Know the shapes of bacteria.
Know the difference between gram-negative and gram-positive bacteria.
Know the difference between photoautotrophs, chemoautotrophs and heterotrophs.
Know the difference between the lytic and lysogenic cycles.
Know how bacteria causes disease and how viruses cause disease.
Understand HIV reproduction.
Know the basic classifications of protists (section 21.2).
Know the structure of the *Paramecium caudatum* (p.503).
Understand the following topics: (Be able to define AND EXPLAIN.)
binary fission, conjugation, nucleoid, plasmids, flagella, cilia, pili, peptidoglycan, binary fission, conjugation, transformation, transduction, endospores, viroids, prions, toxins, antibiotics, antibiotic resistance, nucleic acids, capsid, envelope, tail fibers, budding fragmentation, pseudopodia, green algae, gametes, zygote and alternation of generations.

The following questions provide some practice for the concepts above. Do not memorize the questions, but work on understanding the topics that are covered.

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Some Archaean molecules are more similar to molecules in
a. bacteria.
b. viruses.
c. eukaryotic organisms.
d. cyanobacteria.

____ 2. Structures found in bacterial cells but *not* in eukaryotic cells are
a. nuclei.
b. linear chromosomes.
c. membrane-bound organelles.
d. circular chromosomes.



____ 3. Refer to the illustration above. Organism *B* has a shape similar to that of
a. *Micrococcus.* b. *Bacillus.* c. *Streptococcus.* d. *Leptospira.*

____ 4. One difference between the cells in a human body and bacterial cells is that bacterial cells have
   a. an outer cell wall made up of lipids.
   b. an outer cell wall made up of carbohydrates and proteins.
   c. no DNA.
   d. no ribosomes.

____ 5. One difference between the cells in a human body and bacterial cells is that bacterial cells have
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____ 6. chemoautotrophic bacteria : inorganic molecules::
   a. chemotrophic bacteria : dead organisms
   b. photoautotrophic bacteria : sunlight
   c. photosynthesis : nitrogen fixation
   d. heterotrophic bacteria : photosynthesis

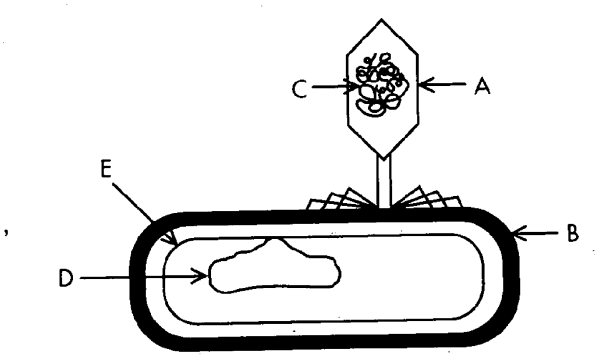
____ 7. Nitrogen-fixing bacteria
   a. repair nitrogen-damaged soybean roots.
   b. damage the environment by using atmospheric oxygen to produce toxic nitrogen compounds.
   c. convert atmospheric nitrogen into a usable form of nitrogen.
   d. convert ammonia in the soil into nitrogen gas.

____ 8. Bacterial cells such as *Escherichia coli* transfer pieces of genetic material in a process called
   a. binary fission.
   b. mitosis.
   c. conjugation.
   d. sexual reproduction.

____ 9. Bacteria that cause botulism may survive in canned food for a long time because
   a. the can was left open.
   b. some cans may contain viruses that protect the bacteria.
   c. the bacteria may form endospores.
   d. sterilized cans do not have enough oxygen to harm the bacteria.

____ 10. The study of viruses is a part of biology because viruses
   a. belong to the domain Archaea.
   b. are about to become extinct.
   c. are living organisms.
   d. are active inside living cells.

____ 11. Biologists now know that viruses
   a. are the smallest organisms.
   b. consist of a protein surrounded by a nucleic acid coat.
   c. contain RNA or DNA in a protein coat.
   d. all form the same crystalline shape.



____ 12. Refer to the illustration above. Which structure represents protein?
a. structure *B*
b. structure *A*
c. structure *D*
d. structure *E*

____ 13. A pathogen is an agent that is
a. beneficial to humans.
b. harmful only to plants.
c. harmful to living organisms.
d. nearly extinct.

____ 14. Antibiotics are ineffective against viral infections because
a. viruses are protected inside their host cells.
b. viruses have enzymes that inactivate the antibiotics.
c. antibiotics interfere with metabolic processes that viruses do not perform.
d. viral protein coats block the antibiotics from entering the virus.

____ 15. Which of the following is *not* true about some or all protists?
a. unicellular and heterotrophic
b. unicellular and autotrophic
c. multicellular and autotrophic
d. multicellular and prokaryotic

____ 16. Which of the following characteristics did *not* evolve in the Kingdom Protista?
a. unicellularity
b. gametes
c. membrane-bound organelles
d. complex cilia and flagella

____ 17. Algae are
a. sometimes heterotrophic.
b. always microscopic in size.
c. found in fresh water, salt water, and damp soil.
d. found only in fresh water.

____ 18. Protists that play an important role in aquatic food webs are called
a. plankton.
b. lichens.
c. anchovies.
d. cyanobacteria.

____ 19. Agar is a product used to grow bacteria. Agar comes from
a. bacteria.
b. algae.
c. diatoms.
d. amoebas.

____ 20. When an algal bloom dies, the bacteria that decompose the algae
a. deplete carbon dioxide levels in the water.
b. kill the plankton population.
c. deplete oxygen levels in the water.
d. kill fish.

____ 21. The evolution of the plant kingdom can be inferred by studying
a. green algae.
b. brown algae.
c. red algae.
d. dinoflagellates.

____ 22. Protists that play an important role in aquatic food webs are called
a. plankton. b. lichens. c. anchovies. d. cyanobacteria.

____ 23. The protist that causes malaria reproduces in the
a. intestine of a human.
b. red blood cells of a mosquito.
c. red blood cells of a human.
d. stinger of a mosquito.

____ 24. Giardiasis is a disease that is spread
a. by direct person-to-person contact.
b. through the air.
c. through contaminated water.
d. by the *Anopheles* mosquito.

____ 25. Pseudopodia are used for
a. *Paramecium* conjugation.
b. movement by amoebas.
c. *Euglena* reproduction.
d. *Paramecium* mitosis.

____ 26. What is the advantage of **sexual** reproduction?
a. Genetic variation
b. No genetic variation
c. Fast reproduction
d. Slow reproduction

____ 27. Zoospores are
a. produced as a result of meiosis.
b. diploid.
c. produced as a result of mitosis.
d. all parasitic.

____ 28. Viroids are
a. much smaller than viruses.
b. much larger than viruses.
c. misshapen proteins.
d. found in the brain.

____ 29. A virulent virus is one that
a. has only DNA.
b. has only RNA.
c. reproduces only with a lysogenic cycle.
d. reproduces only with a lytic cycle.