

# TEST BANK

## OPENSTAX MICROBIOLOGY



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# **OPENSTAX MICROBIOLOGY TEST BANK OpenStax Microbiology THIS TEST BANK COVERS ALL CHAPTERS 1-26 OF THE BOOK**

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## Chapter 1: An Invisible World

\* = Correct answer

### Multiple Choice

1. Which of the following is true of the microbial world?
  - A. All microbes are harmful.
  - B. Humans could survive without microbes.
  - C. Many microbes are helpful.\*
  - D. Most microbes are pathogenic.

Difficulty: Easy

ASM Standard: 23, 24

2. Which of the following is when humans first suspected the existence of microbes?
  - A. during the Industrial Revolution
  - B. in prehistoric times\*
  - C. in the last century
  - D. within the last 500 years

Difficulty: Easy

ASM Standard: 23

3. Which individual first observed unicellular organisms, which he called "animalcules," using a microscope he developed?
  - A. Robert Koch
  - B. Louis Pasteur
  - C. Thucydides
  - D. Antonie van Leeuwenhoek\*

Difficulty: Easy

ASM Standard: 6

4. To reduce the risk of open flame from Bunsen burners, microbiologists are increasingly using which of the following devices for easy, rapid benchtop sterilization of small pieces of equipment?
  - A. autoclaves
  - B. ethylene oxide
  - C. incubators
  - D. microincinerators\*

Difficulty: Easy

ASM Standard: 36

5. The Swedish botanist known for having developed an important biological classification system is which of the following people?
- A. Ernst Haeckel
  - B. Carolus Linnaeus\*
  - C. Louis Pasteur
  - D. Robert Whittaker

Difficulty: Easy

ASM Standard: N/A

6. Which kingdom was the only one found in Empire Prokaryota?
- A. Animalia
  - B. Fungi
  - C. Monera\*
  - D. Protista

Difficulty: Easy

ASM Standard: N/A

7. Which are the three currently accepted domains?
- A. Archaea, Bacteria, and Eukarya\*
  - B. Archaea, Prokaryota, and Eukaryota
  - C. Bacteria, Fungi, and Protista
  - D. Bacteria, Prokaryota, and Eukarya

Difficulty: Easy

ASM Standard: N/A

8. Which two taxonomic units are typically used to identify an organism when using binomial nomenclature?
- A. domain and kingdom
  - B. genus and family
  - C. genus and species\*
  - D. phylum and class

Difficulty: Easy

ASM Standard: N/A

9. Which of the following is not true about the process of fermentation?
- A. It can help preserve foods, preventing spoilage.
  - B. It converts sugars to organic acids, alcohols, and/or gases such as carbon dioxide.
  - C. It is carried out exclusively by unicellular eukaryotes such as yeast.\*
  - D. It is used to make foods such as cheese and bread.

Difficulty: Moderate

ASM Standard: 11, 23, 26

10. The Romans may have reduced their risk of waterborne infectious diseases by using which of the following?
- A. a variety of pharmaceutical products
  - B. aqueducts and a sewer system\*
  - C. prophylactic antibiotics
  - D. quarantine of people with leprosy

Difficulty: Moderate

ASM Standard: 23

11. For which of the following is Thucydides known?
- A. developing an effective sewer system in ancient Greece, helping to reduce levels of disease in cities
  - B. observing microbes, using a microscope, for the first time, even distinguishing between bacteria and fungi
  - C. proposing that disease was caused by microorganisms
  - D. realizing that people who had been infected by the Athenian plague had immunity to reinfection\*

Difficulty: Moderate

ASM Standard: 23, 31

12. Ernst Haeckel proposed a classification system consisting of which of the following subgroups?
- A. five kingdoms
  - B. four kingdoms\*
  - C. two domains and three kingdoms
  - D. two domains and five kingdoms

Difficulty: Moderate

ASM Standard: N/A

13. Viruses not included in phylogenetic trees for which of the following reasons?
- A. It is too difficult to observe their characteristics.
  - B. They are acellular and nonliving.\*
  - C. They do not have any genes, which prevents genetic analysis.
  - D. They lack a nucleus.

Difficulty: Moderate

ASM Standard: 5

14. Which is the best description of the primary purpose of a phylogeny?
- A. Phylogenies show all the alternative names for each species.
  - B. Phylogenies show all the common names for each species.
  - C. Phylogenies show evolutionary relatedness between organisms.\*

D. Phylogenies show interactions between species in a shared habitat.

Difficulty: Moderate

ASM Standard: 5

15. Current phylogenetic analyses include which of the following?
- A. information from a range of sources, including morphological, genetic, and biochemical data\*
  - B. information on visible similarities only
  - C. information regarding how to classify organisms on the basis of external morphological characteristics and visible behaviors
  - D. varied morphological and structural characteristics, with preference for leaving historical classifications to prevent confusion

Difficulty: Moderate

ASM Standard: 5

16. Diatoms are classified within which of the following domains?
- A. Archaea
  - B. Bacteria
  - C. Eukarya\*
  - D. Prokaryota

Difficulty: Moderate

ASM Standard: N/A

17. Horizontal gene transfer involves which of the following?
- A. any transfer of genes in a laboratory setting
  - B. the transfer of genes from a virus to a bacterium or vice versa but not any other form of gene transfer
  - C. the transfer of genes from one individual to another, including from one species to another, but not from parent to offspring\*
  - D. the transfer of genes from parent to offspring

Difficulty: Moderate

ASM Standard: 2, 4

18. Bacteria are generally identified to species by using which of the following?
- A. a combination of genetic, biochemical, and microscopic approaches\*
  - B. a combination of microscopic and physiological approaches, but not genetics
  - C. primarily characteristics such as motility that can be visualized using microscopy
  - D. primarily morphological characteristics of individual cells

Difficulty: Moderate

ASM Standard: 34, 36

19. For taxonomic classification of microbes, serological tests typically are used to do which of the following?

- A. determine complete genome sequences for microbes
- B. identify proteins on the basis of their reaction with specific antibodies\*
- C. run analyses to identify whether particular genes are present
- D. visualize microbial external morphology

Difficulty: Moderate

ASM Standard: 34, 36

20. Which of the following is true of bacterial strains?

- A. They are closely related subtypes within a bacterial species that may or may not have similar properties.\*
- B. They are informal bacterial groupings used for medical distinctions but not recognized for classification purposes.
- C. They are more distantly related to each other than are members of a single bacterial species.
- D. They are very similar bacteria with almost identical properties.

Difficulty: Moderate

ASM Standard: 5

21. *Bergey's Manual of Systematic Bacteriology* is used primarily as which of the following?

- A. a guide to bacterial shapes
- B. a historical account of changes in classification techniques
- C. a list and characterization of all known medically relevant microbes
- D. a reference for bacterial classification\*

Difficulty: Moderate

ASM Standard: 34

22. Which of the following indicates how bacteria and viruses typically compare in size?

- A. Bacteria are indistinguishable from viruses.
- B. Bacteria are much larger than viruses.\*
- C. Bacteria are much smaller than viruses.
- D. Bacteria are similar in size to viruses.

Difficulty: Easy

ASM Standard: N/A

23. Viruses are classified as which of the following?

- A. Archaea
- B. Bacteria
- C. Eukarya
- D. distinct from the three-domain system\*