Chapter 01
Test Bank: The Evolution of Microorganisms and Microbiology

True / False Questions

1. Microorganisms contain 50% of the biological carbon and 90% of the biological nitrogen on Earth.
TRUE

Bloom's Level: Understand
Section 1.01
Topic: Microbial World

Fill in the Blank Questions

2. All living organisms can be placed into one of three _____, which include the *Bacteria, Archaea,* and the *Eukarya*.
domains

Bloom's Level: Understand
Section 1.01
Topic: Microbial World

3. *Archaea* are prokaryotes that have unique cell membrane _____.
lipids

Bloom's Level: Remember
Section 1.01
Topic: Prokaryotes

True / False Questions

4. Microbiologists study a variety of organisms, but all are considered members of either *Bacteria* or *Archaea*.
FALSE

Bloom's Level: Apply
Section 1.01
Topic: Microbial World

5. All eukaryotes have a membrane-delimited nucleus.
TRUE

Bloom's Level: Remember
Section 1.01
Topic: Eukaryotes

6. Viruses are not generally studied by microbiologists because they are not classified as living organisms.
FALSE

Bloom's Level: Understand
Section 1.01
Topic: Viruses and Acellular Infectious Agents

7. Viruses constitute the fourth domain of life in current biological classification schemes.
FALSE

Bloom's Level: Evaluate
Section 1.01
Topic: Viruses and Acellular Infectious Agents

Multiple Choice Questions

8. Protists contain all of the following forms of life except
A. protozoa.
B. fungi.
C. slime molds.
D. algae.

Bloom's Level: Remember
Section 1.01
Topic: Microbial World

9. Cells with a relatively complex morphology that have a true membrane-delimited nucleus are called
A. prokaryotes.
B. eukaryotes.
C. urkaryotes.
D. nokaryotes.

Bloom's Level: Understand
Section 1.01
Topic: Eukaryotes

10. Cells with a relatively simple cell morphology that do not have a true membrane-delimited nucleus are called
A. prokaryotes.
B. eukaryotes.
C. urkaryotes.
D. nokaryotes.

Bloom's Level: Understand
Section 1.01
Topic: Prokaryotes

11. The ribosomal RNA studies that led to the division of prokaryotic organisms into the Bacteria and the Archaea were begun by
A. Pasteur
B. Woese
C. Needham
D. Watson

Bloom's Level: Remember
Section 1.01
Topic: History of Microbiology

12. Definition of life includes all of the following except
A. cells maintain internal order
B. cells use energy and have a metabolism
C. cells reproduce
D. cells lack response to external environment

Bloom's Level: Understand
Section 1.02
Topic: Microbial World

13. Proteins function in modern cells as
A. catalysts
B. hereditary information
C. structural elements
D. both A and C

Bloom's Level: Understand
Section 1.02
Topic: Microbial World

14. RNA serves to convert the information stored in DNA to _____.
A. carbohydrates
B. protein
C. lipids
D. RNA

Bloom's Level: Understand
Section 1.02
Topic: Genetics

15. Catalytic proteins speed up the myriad of chemical reactions that occur in cells; these proteins are known as
A. ribozymes
B. nucleic acids
C. enzymes
D. lipids

Bloom's Level: Remember
Section 1.02
Topic: Microbial Metabolism

True / False Questions

16. The earliest microbial fossils that have been found are dated from approximately 4.5 million years ago.
FALSE

Bloom's Level: Remember
Section 1.02
Topic: Microbial World

Multiple Choice Questions

17. Which of the following distinguish the field of microbiology from other fields of biology?
A. the size of the organism studied
B. the techniques used to study organisms regardless of their size
C. both the size of the organism studied and the techniques employed in the study of organisms
D. neither the size of the organism studied nor the techniques employed in the study of organisms regardless of their size

Bloom's Level: Understand
Section 1.03
Topic: Tools and Methods of Culturing, Classifying, and Identifying Microorganisms

18. Who of the following developed a set of criteria that could be used to establish a causative link between a particular microorganism and a particular disease?
A. Fracastoro
B. Koch
C. Pasteur
D. Lister

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

19. Who of the following was the first to observe and accurately describe microorganisms?
A. Pasteur
B. Lister
C. van Leeuwenhoek
D. Tyndall

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

20. Who of the following provided the evidence needed to discredit the concept of spontaneous generation?
A. Pasteur
B. Koch
C. Semmelweiss
D. Lister

Bloom's Level: Remember
Bloom's Level: Understand
Section 1.03
Topic: History of Microbiology

21. The concept that living organisms arise from nonliving material is called
A. biogenesis.
B. cell theory.
C. spontaneous generation.
D. germ theory.

Bloom's Level: Understand
Section 1.03
Topic: History of Microbiology

22. The concept that human and animal diseases are caused by microorganisms is called the
A. cell theory.
B. germ theory.
C. causative theory.
D. disease theory.

Bloom's Level: Understand
Section 1.03
Topic: Infection and Disease

23. Whose work on spontaneous generation first demonstrated the existence of a very heat-resistant form of bacteria that are called endospores?
A. Schwann
B. Redi
C. Tyndall
D. Pasteur

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

24. Antiseptic surgery was pioneered by
A. Pasteur.
B. Lister.
C. Jenner.
D. Kitasato.

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

25. Studies by Emil von Behring and Shibasaburo Kitasato demonstrated that inactivated toxins can induce the synthesis of antitoxins in the blood of rabbits. These antitoxins (antibodies) are the basis of
A. humoral immunity.
B. cell-mediated immunity.
C. antibiotic immunity.
D. phagocyte-mediated immunity.

Bloom's Level: Understand
Section 1.03
Topic: History of Microbiology

26. The first surgical antiseptic to be used was
A. iodine.
B. ethanol.
C. phenol.
D. none of the choices.

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

27. Old cultures of bacteria that have lost their ability to cause disease are said to be
A. impotent.
B. virulent.
C. pathogenic.
D. attenuated.

Bloom's Level: Understand
Section 1.03
Topic: Infection and Disease

28. Who is credited with developing and documenting the first vaccination procedure against smallpox?
A. Koch
B. Pasteur
C. Jenner
D. Lister

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

29. Who is credited with developing a vaccine against chicken cholera?
A. Koch
B. Pasteur
C. Jenner
D. Lister

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

30. Who of the following first discovered that some blood leukocytes could engulf disease-causing bacteria?
A. von Behring
B. Meister
C. Metchnikoff
D. Ivanowski

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

31. The use of enrichment cultures and selective media was pioneered by
A. Beijerinck.
B. Jenner.
C. Pasteur.
D. von Behring.

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

True / False Questions

32. Fanny Hesse first suggested that agar be used to solidify microbiological media.
TRUE

Bloom's Level: Understand
Section 1.03
Topic: History of Microbiology

33. M. J. Berkeley demonstrated that the great potato blight of Ireland was caused by a fungus.
TRUE

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

34. Invisible living creatures were thought to exist and cause disease long before they were ever observed.
TRUE

Bloom's Level: Understand
Section 1.03
Topic: History of Microbiology

35. Koch's postulates were instrumental in establishing that *Mycobacterium leprae* is the cause of leprosy.
FALSE

Bloom's Level: Understand
Section 1.03
Topic: History of Microbiology

36. Edward Jenner's work in preventing rabies led to the use of the term vaccination to describe a type of procedure used in the prevention of disease.
FALSE

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

37. Although developed over 100 years ago, Koch's postulates continue to be used successfully in all known human infectious diseases.
FALSE

Bloom's Level: Understand
Section 1.03
Topic: History of Microbiology

38. The criteria for establishing a causative link between a particular microorganism and a particular disease were first proposed by Jacob Henle.
TRUE

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

39. Viruses and bacteria were first cultured in the laboratory at about the same time.
FALSE

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

40. Agar is used as a solidifying agent for microbiological media because it is not readily digested by most microorganisms.
TRUE

Bloom's Level: Understand
Section 1.03
Topic: Tools and Methods of Culturing, Classifying, and Identifying Microorganisms

41. Charles Chamberland developed porcelain filters that allowed other scientists to demonstrate that viruses are smaller than bacteria.
TRUE

Bloom's Level: Understand
Section 1.03
Topic: History of Microbiology

42. The first disease to be identified as being caused by a virus was tobacco mosaic disease.
TRUE

Bloom's Level: Remember
Section 1.03
Topic: Viruses and Acellular Infectious Agents

43. John Tyndall demonstrated that microorganisms present in the air are carried on dust particles.
TRUE

Bloom's Level: Understand
Section 1.03
Topic: History of Microbiology

44. Agastino Bassi demonstrated that a type of silkworm disease was caused by a fungus and proposed that many diseases are caused by microorganisms.
TRUE

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

45. The usefulness of agar in solidifying microbiological growth media is limited because it does not remain solid at temperatures about 28ºC.
FALSE

Bloom's Level: Understand
Section 1.03
Topic: Tools and Methods of Culturing, Classifying, and Identifying Microorganisms

46. Robert Koch developed a vaccine that could be used to prevent anthrax.
FALSE

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

Fill in the Blank Questions

47. Elie Metchnikoff discovered _____, which is a major feature of the host immune response.
phagocytosis

Bloom's Level: Understand
Section 1.03
Topic: History of Microbiology

48. An Italian physician, _____, challenged the concept of spontaneous generation by demonstrating that maggots do not arise from decaying meat but rather from developing fly eggs.
Redi

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

49. _____ discovered that soil bacteria could oxidize iron, sulfur, and ammonia to obtain energy.
Winogradsky

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

50. _____ was the first to isolate a root nodule bacterium capable of nitrogen fixation.
Beijerinck

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

True / False Questions

51. The endosymbiotic hypothesis is generally accepted as the origin of two eukaryotic organelles: mitochondria and chloroplasts.
FALSE

Bloom's Level: Understand
Section 1.03
Topic: Microbial World

52. The relationship between specific bacteria and specific diseases was first demonstrated by Koch.
TRUE

Bloom's Level: Remember
Section 1.03
Topic: History of Microbiology

53. Some microorganisms are useful in bioremediation processes that reduce the effects of pollution.
TRUE

Bloom's Level: Understand
Section 1.04
Topic: Applied and Industrial Microbiology

Fill in the Blank Questions

54. The branch of microbiology that deals with diseases of humans and animals is called _____ microbiology.
medical

Bloom's Level: Understand
Section 1.04
Topic: Applied and Industrial Microbiology

55. The branch of microbiology that deals with the mechanisms by which the human body protects itself from disease-causing organisms is called _____.
immunology

Bloom's Level: Understand
Section 1.04
Topic: Immunity and Immunization

56. _____ microbiologists monitor community food establishments and water supplies in order to control the spread of communicable diseases.
Public health

Bloom's Level: Understand
Section 1.04
Topic: Applied and Industrial Microbiology

57. The branch of microbiology that studies the relationship between microorganisms and their habitats is called _____.
microbial ecology

Bloom's Level: Understand
Section 1.04
Topic: Microbial Ecology

58. _____ and _____ microbiology investigates the spoilage of products for human consumption and the use of microorganisms in the production of cheese, yogurt, pickles, beer, and the like.
Food, dairy

Bloom's Level: Understand
Section 1.04
Topic: Applied and Industrial Microbiology

59. _____ microbiology involves the use of microorganisms to make products such as antibiotics, vaccines, steroids, alcohols, vitamins, amino acids, and enzymes.
Industrial

Bloom's Level: Understand
Section 1.04
Topic: Applied and Industrial Microbiology

60. Microbial _____ are scientists who investigate the synthesis of antibiotics and toxins, the production of energy with microorganisms, and the ways in which microorganisms survive harsh environmental conditions.
physiologists

Bloom's Level: Understand
Section 1.04
Topic: Applied and Industrial Microbiology

61. Microbial _____ focuses on the nature of heredity and how it regulates the development and function of cells and organisms.
genetics

Bloom's Level: Understand
Section 1.04
Topic: Genetics