

Student: _____

1. Microorganisms contain 50% of the biological carbon and 90% of the biological nitrogen on Earth.
True False
2. All living organisms can be placed into one of three _____, which include the *Bacteria*, *Archaea*, and the *Eukarya*.

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

4. Microbiologists study a variety of organisms, but all are considered members of either *Bacteria* or *Archaea*.
True False
5. All eukaryotes have a membrane-delimited nucleus.
True False
6. Viruses are not generally studied by microbiologists because they are not classified as living organisms.
True False
7. Viruses constitute the fourth domain of life in current biological classification schemes.
True False
8. Protists contain all of the following forms of life except
 - A. protozoa.
 - B. fungi.
 - C. slime molds.
 - D. algae.
9. Cells with a relatively complex morphology that have a true membrane-delimited nucleus are called
 - A. prokaryotes.
 - B. eukaryotes.
 - C. urkaryotes.
 - D. nokaryotes.
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.
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

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
13. Proteins function in modern cells as
 - A. catalysts
 - B. hereditary information
 - C. structural elements
 - D. both A and C
14. RNA serves to convert the information stored in DNA to _____.
 - A. carbohydrates
 - B. protein
 - C. lipids
 - D. RNA
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
16. The earliest microbial fossils that have been found are dated from approximately 4.5 million years ago.
True False
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
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
19. Who of the following was the first to observe and accurately describe microorganisms?
 - A. Pasteur
 - B. Lister
 - C. van Leeuwenhoek
 - D. Tyndall
20. Who of the following provided the evidence needed to discredit the concept of spontaneous generation?
 - A. Pasteur
 - B. Koch
 - C. Semmelweiss
 - D. Lister

21. The concept that living organisms arise from nonliving material is called
 - A. biogenesis.
 - B. cell theory.
 - C. spontaneous generation.
 - D. germ theory.
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.
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
24. Antiseptic surgery was pioneered by
 - A. Pasteur.
 - B. Lister.
 - C. Jenner.
 - D. Kitasato.
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.
26. The first surgical antiseptic to be used was
 - A. iodine.
 - B. ethanol.
 - C. phenol.
 - D. none of the choices.
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.
28. Who is credited with developing and documenting the first vaccination procedure against smallpox?
 - A. Koch
 - B. Pasteur
 - C. Jenner
 - D. Lister
29. Who is credited with developing a vaccine against chicken cholera?
 - A. Koch
 - B. Pasteur
 - C. Jenner
 - D. Lister

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
31. The use of enrichment cultures and selective media was pioneered by
- A. Beijerinck.
 - B. Jenner.
 - C. Pasteur.
 - D. von Behring.
32. Fanny Hesse first suggested that agar be used to solidify microbiological media.
True False
33. M. J. Berkeley demonstrated that the great potato blight of Ireland was caused by a fungus.
True False
34. Invisible living creatures were thought to exist and cause disease long before they were ever observed.
True False
35. Koch's postulates were instrumental in establishing that *Mycobacterium leprae* is the cause of leprosy.
True False
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.
True False
37. Although developed over 100 years ago, Koch's postulates continue to be used successfully in all known human infectious diseases.
True False
38. The criteria for establishing a causative link between a particular microorganism and a particular disease were first proposed by Jacob Henle.
True False
39. Viruses and bacteria were first cultured in the laboratory at about the same time.
True False
40. Agar is used as a solidifying agent for microbiological media because it is not readily digested by most microorganisms.
True False
41. Charles Chamberland developed porcelain filters that allowed other scientists to demonstrate that viruses are smaller than bacteria.
True False
42. The first disease to be identified as being caused by a virus was tobacco mosaic disease.
True False
43. John Tyndall demonstrated that microorganisms present in the air are carried on dust particles.
True False
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 False

45. The usefulness of agar in solidifying microbiological growth media is limited because it does not remain solid at temperatures about 28°C.
True False
46. Robert Koch developed a vaccine that could be used to prevent anthrax.
True False
47. Elie Metchnikoff discovered _____, which is a major feature of the host immune response.

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.

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

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

51. The endosymbiotic hypothesis is generally accepted as the origin of two eukaryotic organelles: mitochondria and chloroplasts.
True False
52. The relationship between specific bacteria and specific diseases was first demonstrated by Koch.
True False
53. Some microorganisms are useful in bioremediation processes that reduce the effects of pollution.
True False
54. The branch of microbiology that deals with diseases of humans and animals is called _____
microbiology.

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

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

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

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.

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

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.

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

1 Key

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

TRUE

*Blooms Level: Understand
Section: 1.01
Topic: Microbial World
Willey - Chapter 01 #1*

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

domains

*Blooms Level: Understand
Section: 1.01
Topic: Microbial World
Willey - Chapter 01 #2*

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

lipid

*Blooms Level: Remember
Section: 1.01
Topic: Prokaryotes
Willey - Chapter 01 #3*

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

FALSE

*Blooms Level: Apply
Section: 1.01
Topic: Microbial World
Willey - Chapter 01 #4*

5. All eukaryotes have a membrane-delimited nucleus.

TRUE

*Blooms Level: Remember
Section: 1.01
Topic: Eukaryotes
Willey - Chapter 01 #5*

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

FALSE

*Blooms Level: Understand
Section: 1.01
Topic: Viruses and Acellular Infectious Agents
Willey - Chapter 01 #6*

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

FALSE

*Blooms Level: Evaluate
Section: 1.01
Topic: Viruses and Acellular Infectious Agents
Willey - Chapter 01 #7*

8. Protists contain all of the following forms of life except

A. protozoa.

B. fungi.

C. slime molds.

D. algae.

*Blooms Level: Remember
Section: 1.01
Topic: Microbial World
Willey - Chapter 01 #8*

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

Blooms Level: Understand
Section: 1.01
Topic: Eukaryotes
Willey - Chapter 01 #9

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.

Blooms Level: Understand
Section: 1.01
Topic: Prokaryotes
Willey - Chapter 01 #10

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

Blooms Level: Remember
Section: 1.01
Topic: History of Microbiology
Willey - Chapter 01 #11

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**

Blooms Level: Understand
Section: 1.02
Topic: Microbial World
Willey - Chapter 01 #12

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

Blooms Level: Understand
Section: 1.02
Topic: Microbial World
Willey - Chapter 01 #13

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

Blooms Level: Understand
Section: 1.02
Topic: Genetics
Willey - Chapter 01 #14

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

Blooms Level: Remember
Section: 1.02
Topic: Microbial Metabolism
Willey - Chapter 01 #15

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

Blooms Level: Remember
Section: 1.02
Topic: Microbial World
Willey - Chapter 01 #16

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

Blooms Level: Understand
Section: 1.03
Topic: Tools and Methods of Culturing, Classifying, and Identifying Microorganisms
Willey - Chapter 01 #17

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

Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #18

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

Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #19

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

Blooms Level: Remember
Blooms Level: Understand
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #20

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

*Blooms Level: Understand
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #21*

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.

*Blooms Level: Understand
Section: 1.03
Topic: Infection and Disease
Willey - Chapter 01 #22*

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

*Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #23*

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

*Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #24*

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.

*Blooms Level: Understand
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #25*

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

*Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #26*

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.

Blooms Level: Understand
Section: 1.03
Topic: Infection and Disease
Willey - Chapter 01 #27

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

Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #28

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

Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #29

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

Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #30

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

Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #31

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

Blooms Level: Understand
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #32

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

Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #33

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

TRUE

*Blooms Level: Understand
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #34*

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

FALSE

*Blooms Level: Understand
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #35*

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

*Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #36*

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

FALSE

*Blooms Level: Understand
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #37*

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

TRUE

*Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #38*

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

FALSE

*Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #39*

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

TRUE

*Blooms Level: Understand
Section: 1.03
Topic: Tools and Methods of Culturing, Classifying, and Identifying Microorganisms
Willey - Chapter 01 #40*

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

TRUE

*Blooms Level: Understand
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #41*

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

TRUE

*Blooms Level: Remember
Section: 1.03
Topic: Viruses and Acellular Infectious Agents
Willey - Chapter 01 #42*

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

TRUE

*Blooms Level: Understand
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #43*

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

*Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #44*

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

FALSE

*Blooms Level: Understand
Section: 1.03
Topic: Tools and Methods of Culturing, Classifying, and Identifying Microorganisms
Willey - Chapter 01 #45*

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

FALSE

*Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #46*

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

phagocytosis

*Blooms Level: Understand
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #47*

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

*Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #48*

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

Winogradsky

*Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #49*

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

Beijerinck

*Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #50*

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

FALSE

*Blooms Level: Understand
Section: 1.03
Topic: Microbial World
Willey - Chapter 01 #51*

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

*Blooms Level: Remember
Section: 1.03
Topic: History of Microbiology
Willey - Chapter 01 #52*

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

*Blooms Level: Understand
Section: 1.04
Topic: Applied and Industrial Microbiology
Willey - Chapter 01 #53*

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

*Blooms Level: Understand
Section: 1.04
Topic: Applied and Industrial Microbiology
Willey - Chapter 01 #54*

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

*Blooms Level: Understand
Section: 1.04
Topic: Immunity and Immunization
Willey - Chapter 01 #55*

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

*Blooms Level: Understand
Section: 1.04
Topic: Applied and Industrial Microbiology
Willey - Chapter 01 #56*

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

*Blooms Level: Understand
Section: 1.04
Topic: Microbial Ecology
Willey - Chapter 01 #57*

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

*Blooms Level: Understand
Section: 1.04
Topic: Applied and Industrial Microbiology
Willey - Chapter 01 #58*

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

*Blooms Level: Understand
Section: 1.04
Topic: Applied and Industrial Microbiology
Willey - Chapter 01 #59*

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

*Blooms Level: Understand
Section: 1.04
Topic: Applied and Industrial Microbiology
Willey - Chapter 01 #60*

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

*Blooms Level: Understand
Section: 1.04
Topic: Genetics
Willey - Chapter 01 #61*

1 Summary

<u>Category</u>	<u># of Questions</u>
Blooms Level: Apply	1
Blooms Level: Evaluate	1
Blooms Level: Remember	27
Blooms Level: Understand	33
Section: 1.01	11
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Topic: Applied and Industrial Microbiology	6
Topic: Eukaryotes	2
Topic: Genetics	2
Topic: History of Microbiology	30
Topic: Immunity and Immunization	1
Topic: Infection and Disease	2
Topic: Microbial Ecology	1
Topic: Microbial Metabolism	1
Topic: Microbial World	8
Topic: Prokaryotes	2
Topic: Tools and Methods of Culturing, Classifying, and Identifying Microorganisms	3
Topic: Viruses and Acellular Infectious Agents	3
Willey - Chapter 01	61