Fundamentals of Microbiology 12th edition Pommerville Test Bank

SKU: 9781284211757-TEST-BANK

Multiple Choice

1. Who was one of the early natural philosophers who coined the name "cella" for the empty cork spaces that became the word we use today, "cells"?
A) Robert Hooke
B) Antoni van Leeuwenhoek
C) Louis Pasteur
D) Giovanni Faber
Ans: A

2. Many infectious agents are, or are becoming, _____, and our arsenal of drugs to fight them _____.
A) polymicrobial infections; is diminishing
B) antibiotic resistant; is diminishing
C) human pathogens; remains strong
D) antibiotic resistant; is increasing
Ans: B

3. Today there is the possibility of _____, the intentional or threatened use of microbial _____ to cause fear in or inflict death or disease upon a large population.
A) bioremediation; pathogens
B) bioterrorism; antibiotic resistance
C) bioterrorism; pathogens
D) biofilms; poisons
Ans: C

4. What scientist(s) discovered the virus that causes yellow fever?
A) William Welch
B) Robert Forde and Joseph Everett
C) David Bruce
D) Walter Reed
Ans: D

5. Pasteur's study of "wine disease" was critical to the development of:
A) the scientific method.

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B) pasteurization.
C) fermentation.
D) nomenclature.
Ans: B

6. Pasteur first suggested that bacteria could cause disease in humans by showing that bacteria could:
A) contaminate canned foods.
B) cause plant diseases.
C) sour wine.
D) infect animals.
Ans: C

7. Pasteur's observations that protozoa were related to the silkworm disease strengthened his belief in the:
A) germ theory of disease.
B) doctrine of spontaneous generation.
C) eukaryotic nature of protozoa.
D) None of these is correct.
Ans: A

8. Koch was responsible for thorough observations on the organisms of:
A) tuberculosis and anthrax.
B) diphtheria and plague.
C) plague and tetanus.
D) measles and diphtheria.
Ans: A

9. Which scientist observed bacterial cells in leprosy patients?
A) Shiga
B) Hansen
C) Hooke
D) Hesse
Ans: B

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10. The accomplishments of Koch include all the following, EXCEPT:
A) development of the rabies vaccine.
B) isolation of the tuberculosis bacterium.
C) development of pure culture techniques.
D) proof of the germ theory of disease.
Ans: A

11. Microbes represent _____ of all marine biomass.
A) 26%
B) 50%
C) 77%
D) 90%
Ans: D

12. What group represents the most abundant infectious microbes on Earth?
A) Fungi
B) Viruses
C) Bacteria
D) Protozoans
Ans: B

13. Microbes and fungal spores account for 20% of all particles found in the _____.
A) soil
B) human body
C) atmosphere
D) water
Ans: C

14. Scientists estimate _____ of microbes have been discovered
A) 2%
B) 10%
C) 50%
D) 90%
Ans: A

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15. Microbes dubbed "zombie bacteria" are found in which environment?
A) Human body
B) Deep underground
C) Atmosphere
D) Marine
Ans: B

16. Deep microbes represent _____ of the Earth's biomass and _____ of all microbes.
A) 50%; 70%
B) 25%; 30%
C) 90%; 40%
D) 35%; 60%
Ans: A

17. Each individual's unique microbiome is a result of which of the following?
A) Age
B) Diet
C) Geographic location
D) All of these are correct.
E) None of these is correct.
Ans: D

18. The average human belly button has a unique combination of more than _____ types of bacteria.
A) 300
B) 50
C) 100
D) 5,000
Ans: B

19. The human microbiome consists of some _____ microbes composing more than _____ different types of bacteria and fungi.
A) 38 trillion; 4,000
B) 38 million; 4,000
C) 38 trillion; 400
D) 38 million; 400
Ans: A

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20. Microbes that cause disease are called _____.
A) microbiota
B) pathogens
C) infection
D) bacteria
Ans: B

21. All of the following are examples of new emerging infectious diseases, EXCEPT:
A) swine flu.
B) chickenpox.
C) Lyme disease.
D) Zika virus disease
Ans: B

22. _____ are not cellular and are considered infectious particles, not organisms.
A) Fungi
B) Bacteria
C) Viruses
D) Protists
Ans: C

23. Nonphotosynthetic eukaryotic organisms with a cell wall belong to what group?
A) Fungi
B) Bacteria
C) Algae
D) Protozoa
Ans: A

24. Single-celled organisms that do not have a cell wall belong to which group?
A) Fungi
B) Bacteria
C) Archaea
D) Protozoa
Ans: D

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25. Which group of microbes has no pathogenic members?
A) Fungi
B) Bacteria
C) Archaea
D) Protozoa
Ans: C

26. Which of the following types of cells are prokaryotic?
A) Fungi
B) Protists
C) Bacteria
D) Viruses
Ans: C

27. The rise in antibiotic resistance is due, in part, to:
A) bacterial mutations.
B) inappropriate prescribing of antibiotics by doctors.
C) demand by patients when antibiotics are not useful in treatment.
D) All of these are correct.
Ans: D

28. In 1676 _____ first described bacteria in a letter to the England's Royal Society of London.
A) Louis Pasteur
B) Robert Hooke
C) Antoni van Leeuwenhoek
D) Robert Koch
Ans: C

29. Who first used the term "germ?"
A) Louis Pasteur
B) Robert Hooke
C) Antoni van Leeuwenhoek
D) Robert Koch

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Ans: A

30. When were petri dishes first developed?
A) 1745
B) 1826
C) 1887
D) 1906
Ans: C

31. Etiology is the study of:
A) disease transmission.
B) vaccination.
C) disease causation.
D) disease treatment.
Ans: C

32. Agar is derived from:
A) marine seaweed.
B) gelatin.
C) collagen extract.
D) synthetic polymers.
Ans: A

33. The first successful use of a rabies vaccine occurred in what year?
A) 1926
B) 1885
C) 1906
D) 1872
Ans: B

34. Before it was used as a growth medium in microbiology, agar was commonly used for what?
A) Making glue
B) Cleaning products
C) Making wine
D) Making fruit preserves

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Ans: D

35. Born in New Jersey, _____ was one of the first Americans to make a significant contribution to the field of microbiology.
A) Robert Hooke
B) Louis Pasteur
C) Fanny Hesse
D) Robert Koch
Ans: C

36. Why do viruses infect other organisms?
A) To replicate
B) To obtain nutrients
C) Protection
D) None of these is correct.
Ans: A

37. Geologists propose the current era be named _____.
A) Micropocene.
B) Anthropocene.
C) Penicilocene.
D) Covidocene.
Ans: B

38. All of the following are issues that need to be addressed to reduce global outbreaks of disease EXCEPT:
A) bioterrorism.
B) climate change.
C) antibiotic-resistant bacteria.
D) biotechnology.
Ans: D

39. The source of most emerging infectious diseases is_____.
A) mutation
B) antibiotic resistance

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C) travel
D) animals
Ans: D

40. Globally _____ people die each year from infectious disease.
A) 47 million
B) 15 million
C) 100 million
D) 20,000
Ans: B

Matching

Match each of the following definitions with the term it best describes.
___ 41. Disease causing agents.
___ 42. Study of the causations of diseases.
___ 43. A colony of a single type of bacteria.
___ 44. Organisms that recycle nutrients from dead organisms.
___ 45. The community of microbes on Earth.
___ 46. Total mass of all organisms in an area.
___ 47. Term used early on to describe microbes seen under a handheld microscope.
___ 48. A "multicellular" community of microbes.
___ 49. Bacteria and other microbes that have become resistant to medical treatments.
A) Decomposers
B) Superbugs
C) Etiology
D) Pathogen
E) Microbiome
F) Pure culture
G) Animalcules
H) Biomass
I) Biofilm
Ans: 41. D; 42. C; 43. F; 44. A; 45. E; 46. H; 47. G; 48. I; 49. B

Write Pasteur next to those phrases that apply to Louis Pasteur and Koch next to those that apply to Robert Koch.
50. _____ identified the germ causing silkworm disease.

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51. _____ failed to find a cure for tuberculosis.
52. _____ devised a set of postulates to link bacterial organisms to disease.
53. _____ developed a successful vaccine for human rabies.
Ans: 50. Pasteur; 51. Koch; 52. Koch; 53. Pasteur

Identify the group of agents (either Bacteria, Archaea, Viruses, Fungi, or Protists) based on the statement given.
54. _____ have no cellular structure.
55. _____ are eukaryotic with no cell wall.
56. _____ is a cellular group that lacks a cell nucleus.
57. _____ are eukaryotic with a cell wall.
58. _____ are prokaryotic; no known pathogens.
Ans: 54. Viruses; 55. Protists; 56. Bacteria; 57. Fungi; 58. Archaea

Match the scientist(s) on the right with the disease they are associated with on the left. Each statement has only one correct answer, which should be marked in the appropriate space to the left of the statement. Answers will only be used once.
59. Edwin Klebs
60. Walter Reed
61. Robert Forde and Joseph Everett
62. William Welch and George Nuttall
63. S. Kitasato and A. Yersin
64. Fritz Schaudinn and Erich Hoffman
65. Arthur Nicolaier
66. Albert Neisser
A) Gas gangrene
B) Bubonic plague
C) Diphtheria
D) Syphilis
E) Tetanus
F) Yellow fever
G) African sleeping sickness
H) Gonorrhea
Ans: 59. C; 60. F; 61. G; 62. A; 63. B; 64. D; 65. E; 66. H

True/False

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For each of the following statements, decide if the statement is true or false. If false, correct the statement to be true.

67. True or False? Leeuwenhoek's training with the microscope, acquired during his university years, allowed him to understand the nature of animalcules when he first observed them.
Ans: False
Response: Leeuwenhoek's training with the microscope, acquired without a university education, allowed him to understand the nature of animalcules when he first observed them.

68. True or False? Microbiology is the study of pathogenic organisms.
Ans: False
Response: Microbiology is the study of microorganisms.

69. True or False? Koch's postulates provided a way to demonstrate immunity in various animals.
Ans: False
Response: Koch's postulates provided a way to demonstrate an infectious disease was caused by a specific microorganism.

70. True or False? Koch provided the definitive proof for the germ theory of disease in his studies with anthrax.
Ans: True

71. True or False? Koch's use of a pure culture ensured that only one type of bacterium was involved in the cause of disease.
Ans: True

72. True or False? Koch developed the first rabies vaccine.
Ans: False
Response: Pasteur developed the first rabies vaccine in 1885.

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73. Pébrine, the disease of silkworms, was discovered by Pasteur to be unlike bacteria or fungus.
Ans: True

74. True or False? Koch's contributions to the germ theory of disease, Koch's postulates, were more procedural in nature than Pasteur's work in his germ theory research.
Ans: True

75. True or False? Rapid travel capabilities make emerging disease easy to contain.
Ans: False
Response: Rapid travel capabilities make emerging disease difficult to contain.

Indicate whether each of the following statements is true or false. If false, correct the underlined part of the statement to make the statement true.

76. US mortality has decreased 80% since 1980.
Ans: False
Response: 20%

77. While working with silkworm disease, Pasteur developed pasteurization.
Ans: False
Response: wine disease

78. Fanny Hesse developed the first petri dishes.
Ans: False
Response: Julius Petri.

79. Pasteur's lab focused on preventing disease through vaccine development.
Ans: True

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80. Charles Laveran identified the pathogen that causes leprosy.
Ans: False
Response: malaria

81. Some deep earth bacteria replicate once every decade.
Ans: True

82. The first successful rabies vaccine was administered after a boy was bitten by a rabid bat.
Ans: False
Response: dog

83. Viruses are the most abundant infectious agents on Earth.
Ans: True

84. Marine viruses kill 20% to 40% of the marine bacteria every day.
Ans: True

85. Today, microbiologists believe they have discovered only about 20% of all microbes.
Ans: False
Response: 2%

86. All humans share the same set of microbes.
Ans: False
Response: do not share

87. A minority of microbes are responsible for infections and disease.
Ans: True

88. Pathogens are microbes that spread diseases like plague, malaria, and smallpox.

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Ans: True

89. Microbes have been insignificant in transforming politics, economies, and public health on a global scale.
Ans: False
Response: significant/instrumental

90. Robert Hooke published a book titled, *Microbiology* in 1665.
Ans: False
Response: *Micrographia*

91. A theory is defined as a hypothesis that has been tested and shown to be correct every time by many separate investigators.
Ans: True

92. Fermentation is a universal method used to kill pathogens and retard spoilage in milk and many other foods and beverages.
Ans: False
Response: Pasteurization

93. Emerging diseases are diseases that were once under control but are now making a resurgence.
Ans: False
Response: Reemerging diseases

94. Bioterrorism represents the intentional or threatened use of biological agents to cause fear in or actually inflict death or disease upon a large population.
Ans: True

95. Disease-carrying mosquitoes kill about 1 million people every year around the world.
Ans: True

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Fill in the Blank

96. In an experiment, the comparative condition in an experiment is called the _____.
Ans: control

97. The inquiry process often begins with a(n) _____.
Ans: observation

98. A(n) _____ is an adjustable condition in an experiment.
Ans: variable

99. A hypothesis that has been tested and shown to be correct by separate investigators is called a(n) _____.
Ans: theory

100. A(n) _____ is a provisional but testable explanation for an observation.
Ans: hypothesis

Microbiologists, epidemiologists, 101. _____, and many other scientists are studying new strategies that can 102. _____ what 103. _____ might be subjected to potential disease spread. The challenge is to expand the understanding of the dynamics of the 104. _____ and recognize how such changes might affect the behavior of potentially 105. _____ and 106. _____ diseases that could affect the health of 107. _____, livestock, plants, and 108 _____.
Ans: 101. climate scientists; 102. predict; 103. populations; 104. climate crisis; 105. emerging; 106. reemerging; 107. humans; 108. wildlife

Over the past decade, the 109. _____ (WHO) has declared four 110. _____,

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which represent serious public health events that endanger 111. _____ public health and 112. _____ populations. Two of them were very recent: the 113. _____ epidemic in West Africa in 2014 to 2016 and the 114. _____ outbreak that spread through the Americas in 2015 to 2016. In fact, according to the WHO over the past 115. _____ years, the number of disease outbreaks globally has increased 116. _____, from 117. _____ per year to more than 118. _____ per year.
Ans: 109. World Health Organization; 110. global health emergencies; 111. international; 112. global; 113. Ebola; 114. Zika; 115. 30; 116. three-fold; 117. 1,000; 118. 3,000

Essay

119. Discuss the four primary challenges that face microbiology today and give specific examples.
Ans: Answers will vary.

120. Do you agree or disagree with the statement that microbes support and affect all life on Earth? Why?
Ans: Answers will vary.

121. Discuss Pasteur's experiment to prove that microbes were present in the air. Be sure to include the materials, methods, and his results in your answer.
Ans: Answers will vary.

122. Describe the difference between a hypothesis and a theory.
Ans: Answers will vary.

123. Discuss the contributions of Petri and Hesse to the work of microbiology.
Ans: Answers will vary.

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