Package Title: Test Bank
Course Title: Black 10e
Chapter Number: 1

Question type: Multiple-Choice

1) Microbes live in us, on us and nearly everywhere around us. Which of the following activities are microbes involved in?

a) Decomposing dead organisms

b) Aiding the digestive processes of grazing animals

c) Capturing energy from the sun

d) All of these

Answer: d

Difficulty: Easy
Learning Objective 1: LO 1.1 Explain the roles that microbes play in our world, outlining their beneficial and harmful contributions and uses in research.
Section Reference 1: Section 1.1

Question type: Multiple-Choice

2) Which of the following is a reason microorganisms are useful in many different research laboratories (such as ecology, biochemistry, evolution and genetics)?

a) They are easy to see and count.

b) They have fairly complex structures and are expensive.

c) They reproduce fast and grow in large numbers.

d) They live everywhere so contaminants from the environment are not a problem.

Answer: c

Difficulty: Easy
Learning Objective 1: LO 1.1 Explain the roles that microbes play in our world, outlining their beneficial and harmful contributions and uses in research.
Section Reference 1: Section 1.1

Question type: Multiple-Choice

3) Microbiology is the study of bacteria, algae, fungi, viruses and protozoa. Most of these are single-celled, except for which two:

a) bacteria (some of which are multicellular) and algae

b) algae and fungi (some have many cells)

c) protozoa and fungi

d) bacteria and viruses

Answer: b

Difficulty: Medium

Learning Objective 1: LO 1.2 Distinguish between the different major taxonomical groups of microbes based on their cellular structure and the fields of microbiology with which they are frequently associated.
Section Reference 1: Section 1.2

Question type: Multiple-Choice

4) A parasitologist studies parasites. What does a mycologist study?

a) protozoa

b) how viruses cause disease and are involved in cancer

c) the development of chemical substances to treat diseases

d) fungi

Answer: d

Difficulty: Easy
Learning Objective 1: LO 1.2 Distinguish between the different major taxonomical groups of microbes based on their cellular structure and the fields of microbiology with which they are frequently associated.
Section Reference 1: Section 1.2

Question type: Multiple-Choice

5) While a doctor may diagnose and treat a patient who presents with a disease, an epidemiologist:

a) helps in the development and use of vaccines

b) investigates what organism is responsible for a particular patients disease

c) figures out how to use microorganisms to clean up the environment

d) studies the frequency and distribution of the disease in the community

Answer: d

Difficulty: Medium
Learning Objective 1: LO 1.1 Explain the roles that microbes play in our world, outlining their beneficial and harmful contributions and uses in research.
Section Reference 1: Section 1.1

Question type: Multiple-Choice

6) What did ancient civilizations know about disease?

a) Even though they could not see microbes the Greeks and Romans knew that they caused disease and could be transmitted.

b) The ancient Mosaic laws in the bible forbid the burial of waste and encouraged the separation of lepers and other diseased individuals.

c) All ancient civilizations thought that disease struck people that were morally corrupt.

d) Infectious diseases did not have much impact on the survival of people in ancient civilizations.

Answer: b

Difficulty: Hard
Learning Objective 1: LO 1.3 Outline the historical milestones that contributed to the development of microbiology as a scientific discipline.
Section Reference 1: Section 1.3

Question type: Multiple-Choice

7) What discovery was crucial to the founding of the field of microbiology?

a) Isolation of lepers limiting the spread of infectious disease

b) Agglutination of bacteria in immune serum

c) The chemical composition of DNA, the genetic material

d) Microscopes which allowed for the direct observation of microbes

Answer: d

Difficulty: Easy
Learning Objective 1: LO 1.3 Outline the historical milestones that contributed to the development of microbiology as a scientific discipline.
Section Reference 1: Section 1.3

Question type: Multiple-Choice

8) The English scientist Robert Hooke coined the term cell because the small boxes he saw in the microscope reminded him of a monk’s room. What is the cell theory that was later proposed?

a) Cells are fundamental units of life.

b) Replication requires the division of cells into two equal cells.

c) Hereditary information is passed on in the form of DNA.

d) All organisms are unicellular, made up of one cell.

Answer: a

Difficulty: Medium
Learning Objective 1: LO 1.3 Outline the historical milestones that contributed to the development of microbiology as a scientific discipline.
Section Reference 1: Section 1.3

Question type: Multiple-Choice

9) All of the following statements agree with the germ theory of disease, except:

a) microorganisms can invade other organisms and cause disease

b) maggots only grow on meat that is left in an open flask because microbes are transmitted by flies and do not spontaneously generate

c) disease causing organisms will spontaneously arise from decaying meat

d) disease is not caused by bad air or spirits

Answer: c

Difficulty: Medium
Learning Objective 1: LO 1.4 Describe the scientific contributions that led to the acceptance of the germ theory of disease and an understanding of the role microbes play in disease.
Section Reference 1: Section 1.4

Question type: Multiple-Choice

10) Louis Pasteur made several important contributions to microbiology. These included studying wine making, identifying diseases in silkworms and which of the following:

a) developing culture techniques

b) developing the first rabies vaccine

c) using a swan-necked flask to prove that air contained the vital force that brought microbes

d) discovering a method to introduce unwanted organisms into food and wine

Answer: b

Difficulty: Hard
Learning Objective 1: LO 1.3 Outline the historical milestones that contributed to the development of microbiology as a scientific discipline.
Section Reference 1: Section 1.3

Question type: Multiple-Choice

11) Koch’s postulates were:

a) specific to anthrax and tuberculosis but don’t apply to other diseases.

b) designed to establish a causal relationship between a causative microbe and a disease.

c) strict in that microorganisms isolated from experimentally inoculated hosts had to be different from the microorganism that was introduced into the host.

d) interpreted as many organism could cause the same disease.

Difficulty: Medium
Learning Objective 1: LO 1.4 Describe the scientific contributions that led to the acceptance of the germ theory of disease and an understanding of the role microbes play in disease.
Section Reference 1: Section 1.4

Question type: Multiple-Choice

12) Koch developed tuberculin, which he hoped would be a vaccine against tuberculosis. Tuberculin is:

a) the current vaccine used against tuberculosis

b) responsible for definitively proving that one organism causes one disease

c) administered as a skin test to diagnose tuberculosis

d) an exception to germ theory

Answer: c

Difficulty: Hard
Learning Objective 1: LO 1.4 Describe the scientific contributions that led to the acceptance of the germ theory of disease and an understanding of the role microbes play in disease.

Section Reference 1: Section 1.4

Question type: Multiple-Choice

13) Which of the following statements is true about infection control?

a) Semmelweiss encouraged physicians to go directly from autopsies to examining women in labor without changing their white coats in hopes of reducing puerperal fever.

b) Surgery which uses aseptic technique increases surgical wound infections.

c) Lister aided infection control by encouraging wounds to be left open to the air instead of using bandages.

d) Semmelweiss was ridiculed by physicians for his suggestion that physicians should wash their hands and adopt more sanitary practices before seeing patients.

Answer: d

Difficulty: Easy
Learning Objective 1: LO 1.4 Describe the scientific contributions that led to the acceptance of the germ theory of disease and an understanding of the role microbes play in disease.
Section Reference 1: Section 1.4

Question type: Multiple-Choice

14) Vaccines are:

a) specific disease-causing molecules that incorporate into cells

b) the causative agent of Black Death

c) selective chemicals used to treat infectious disease

d) preparations that establish immunity to a disease

Answer: d

Difficulty: Easy
Learning Objective 1: LO 1.5 Summarize the importance of specialized fields in microbiology, including immunology, virology, chemotherapy, and molecular biology.
Section Reference 1: Section 1.5

Question type: Multiple-Choice

15) Which statement about variolation is false?

a) Variolation originated in ancient China.

b) Variolation involves infecting a person with dried scabs from lesions of people who had recovered from the disease.

c) Variolation used chemicals produced from another microorganism to immunize against the disease causing microbe.

d) Variolation leads to a controlled infection that induces immunity against further infection.

Answer: c

Difficulty: Hard

Learning Objective 1: LO 1.5 Summarize the importance of specialized fields in microbiology, including immunology, virology, chemotherapy, and molecular biology.
Section Reference 1: Section 1.5

Question type: Multiple-Choice

16) Pasteur worked on rabies and cholera vaccine during the emergence of immunology. While culturing a chicken cholera he noted that an old culture was weakened and useful as a vaccine as it:

a) caused disease

b) caused severe cholera symptoms and prevented further infection

c) allowed for the cholera to spread from person to person

d) did not cause disease symptoms and immunized against chicken cholera

Answer: d

Difficulty: Hard
Learning Objective 1: LO 1.5 Summarize the importance of specialized fields in microbiology, including immunology, virology, chemotherapy, and molecular biology.
Section Reference 1: Section 1.5

Question type: Multiple-Choice

17) Viruses were initially identified as small infectious agents that could pass through filters. How was it believed that these agents could survive?

a) They had small compact structures that allowed for the production of metabolites and replication.

b) They survived on the metabolites and poisons that pass through the filter.

c) They borrowed the use of existing metabolic and replicative mechanisms of the host cells they infected.

d) They are capable of capturing energy from the sun.

Answer: c

Difficulty: Medium
Learning Objective 1: LO 1.5 Summarize the importance of specialized fields in microbiology, including immunology, virology, chemotherapy, and molecular biology.
Section Reference 1: Section 1.5

Question type: Multiple-Choice

18) Because viruses could not be visualized using conventional microscopes further progress required the development of techniques for isolating, propagating and analyzing viruses. All of the following are true except:

a) crystal structure of the tobacco mosaic virus showed that it was made up of RNA and protein

b) viruses were first observed with an electron microscope

c) viral DNA has a different structure from that discovered by Watson and Crick

d) Hershey and Chase demonstrated that the genetic material of some viruses is DNA

Answer: c

Difficulty: Hard
Learning Objective 1: LO 1.5 Summarize the importance of specialized fields in microbiology, including immunology, virology, chemotherapy, and molecular biology.
Section Reference 1: Section 1.5

Question type: Multiple-Choice

19) Before Ehrlich began a systematic search for a chemical to kill specific bacteria, the only chemotherapies available were substances derived from medicinal plants. What distinguished Ehrlich's chemotherapy research?

a) Ehrlich systematically tested hundreds of compounds for their ability to destroy specific bacteria without damaging surrounding tissue.

b) Ehrlich used metals, such as antimony and mercury to treat diseases.

c) Ehrlich inoculated his own son with fluid from a cowpox blíster.

d) Ehrlich introduced cinchona tree bark, a native American remedy to treat malaria.

Answer: a

Difficulty: Medium
Learning Objective 1: LO 1.5 Summarize the importance of specialized fields in microbiology, including immunology, virology, chemotherapy, and molecular biology.
Section Reference 1: Section 1.5

Question type: Multiple-Choice

20) All of the following are true statements about the development of antibiotics, except:

a) most bacteria that stopped the growth of other bacteria by producing antibiotics were soil bacteria

b) Fleming noticed that a contaminant mold (Penicillium) prevented the growth of bacteria adjacent to itself

c) an antibiotic was discovered in the sea after a scientist noted the absence of disease causing organisms in the seawater where the sewage entered

d) sulfa drugs did not prove to be useful as the body converted them into inactive molecules

Answer: d

Difficulty: Hard
Learning Objective 1: LO 1.5 Summarize the importance of specialized fields in microbiology, including immunology, virology, chemotherapy, and molecular biology.
Section Reference 1: Section 1.5

Question type: Multiple-Choice

21) Microbiologists investigate problems by designing and carrying out experiments. What is true about the scientific method?

a) A hypothesis is the definitive explanation to account for the observation and therefore does not need to be tested.

b) A prediction is the factor that can change but is prevented from changing during the duration of the experiment.

c) A good hypothesis is one that offers the simplest most reasonable explanation and can be tested.

d) The goal of an experiment is to prove that scientists are always correct in their predictions.

Answer: c

Difficulty: Medium
Learning Objective 1: LO 1.6 Explain how advances in microbiological sciences have positively impacted medicine, agriculture, and food science.
Section Reference 1: Section 1.6

Question type: Multiple-Choice

22) To design a good experiment, an investigator must consider all variables that might affect the outcome. What is a variable?

a) the record of all the observations

b) everything that a scientist cannot control

c) an outcome that will result if the hypothesis is true

d) anything that can change for the purpose of the experiment

Answer: d

Difficulty: Easy
Learning Objective 1: LO 1.6 Explain how advances in microbiological sciences have positively impacted medicine, agriculture, and food science.

Section Reference 1: Section 1.6

Question type: Multiple-Choice

23) Microbes have played important roles in genetics and in the discovery of DNA as the genetic material. What discoveries depended on bacteria?

a) The ability of a previously harmless bacterium to change into a disease-causing bacterium was due to DNA acquisition.

b) The discovery of the intracellular reproduction of tobacco mosaic virus.

c) The development of the microscope.

d) The identification of a virus that causes yellow fever.

Answer: a

Difficulty: Easy
Learning Objective 1: LO 1.5 Summarize the importance of specialized fields in microbiology, including immunology, virology, chemotherapy, and molecular biology.
Section Reference 1: Section 1.5

Question type: Multiple-Choice

24) Microbiology continues to be an important research field for all of the following reasons, except:

a) all infectious diseases have had vaccines developed and therefore can be prevented

b) many forms of genetic engineering depend on microorganisms

c) new and emerging diseases like AIDS need to be studied

d) microorganisms can be used as factories to cheaply produce drugs, hormones and vaccines

Answer: a

Difficulty: Easy
Learning Objective 1: LO 1.6 Explain how advances in microbiological sciences have positively impacted medicine, agriculture, and food science.
Section Reference 1: Section 1.6

Question type: Multiple-Choice

25) Bacteriophages are:

a) modified antibiotics that were used in the Soviet Union

b) viruses that attack and kill specific kinds of bacteria including antibiotic resistant bacteria

c) used to introduce genes in gene therapy

d) some of the genes in the human genome

Answer: b

Difficulty: Medium
Learning Objective 1: LO 1.6 Explain how advances in microbiological sciences have positively impacted medicine, agriculture, and food science.
Section Reference 1: Section 1.6

Question type: Multiple-Choice

26) Which is a false statement about genomes?

a) genomes contain all the genetic material of a species.

b) all of the genome is made up of useful genes whose function we already know.

c) humans have only 300 genes not found in the mouse.

d) most microbial genomes are smaller than the human genome.

Answer: b

Difficulty: Medium
Learning Objective 1: LO 1.6 Explain how advances in microbiological sciences have positively impacted medicine, agriculture, and food science.
Section Reference 1: Section 1.6

Question type: Multiple-Choice

27) Over 100 microbial genomes have been sequenced. Beyond yielding insight into microbial genetics, these sequencing projects have been important because:

a) they allow insights into microbial pathogenicity.
b) knowing how many chromosomes a microbe has lets us know if it causes disease.

c) without the sequence of the genome we cannot tell what the organism uses as its genetic material.
d) it demonstrates that microorganisms do not cause infectious diseases.

Answer: a

Difficulty: Medium
Learning Objective 1: LO 1.6 Explain how advances in microbiological sciences have positively impacted medicine, agriculture, and food science.
Section Reference 1: Section 1.6

Question type: Multiple-Choice

28) All of the following are considered microbes except:

a) viruses

b) bacteria

c) protozoa

d) worms

Answer: d

Difficulty: Easy
Learning Objective 1: LO 1.1 Explain the roles that microbes play in our world, outlining their beneficial and harmful contributions and uses in research.
Section Reference 1: Section 1.1

Question type: Multiple-Choice

29) The concept of putting microbes to work to clean up the environment is called:

a) bioremediation

b) pasteurization

c) immunization

d) fermentation

Answer: a

Difficulty: Easy
Learning Objective 1: LO 1.1 Explain the roles that microbes play in our world, outlining their beneficial and harmful contributions and uses in research.
Section Reference 1: Section 1.1

Question type: Multiple-Choice

30) A substance derived from one microorganism that kills or restricts the growth of other microorganisms is best described as a.

a) poison

b) antibody

c) vaccine

d) antibiotic

Answer: d

Difficulty: Medium
Learning Objective 1: LO 1.1 Explain the roles that microbes play in our world, outlining their beneficial and harmful contributions and uses in research.
Section Reference 1: Section 1.1

Question type: Multiple-Choice

31) Microbiology is the study of microorganisms which include all of the following except:

a) bacteria

b) viruses

c) plants

d) protozoa

Answer: c

Difficulty: Easy
Learning Objective 1: LO 1.2 Distinguish between the different major taxonomical groups of microbes based on their cellular structure and the fields of microbiology with which they are frequently associated.
Section Reference 1: Section 1.2

Question type: Multiple-Choice

32) Which of the following diseases has been eradicated?

a) Chicken pox

b) Measles

c) Smallpox

d) Mumps

Answer: c

Difficulty: Easy
Learning Objective 1: LO 1.5 Summarize the importance of specialized fields in microbiology, including immunology, virology, chemotherapy, and molecular biology..
Section Reference 1: Section 1.2

Question type: Multiple-Choice

33) Which of the following is not true of algae?

a) they photosynthesize to produce their own food

b) they are found in both fresh- and salt-water

c) they have a nucleus

d) they never cause disease in humans

Answer: d

Difficulty: Medium
Learning Objective 1: LO 1.2 Distinguish between the different major taxonomical groups of microbes based on their cellular structure and the fields of microbiology with which they are frequently associated.
Section Reference 1: Section 1.2

Question type: Multiple-Choice

34) In which of the following groups would you find a mushroom?

a) bacteria

b) protozoa

c) fungi

d) viruses

Answer: c

Difficulty: Easy
Learning Objective 1: LO 1.2 Distinguish between the different major taxonomical groups of microbes based on their cellular structure and the fields of microbiology with which they are frequently associated.
Section Reference 1: Section 1.2

Question type: Multiple-Choice

35) Which of the following groups of organisms contains members better known for transmitting agents of disease than for causing disease themselves?

a) Arthropods

b) Protozoa

c) Fungi

d) Helminths

Answer: a

Difficulty: Easy
Learning Objective 1: LO 1.2 Distinguish between the different major taxonomical groups of microbes based on their cellular structure and the fields of microbiology with which they are frequently associated.
Section Reference 1: Section 1.2

Question type: Multiple-Choice

36) Collecting information and tracking the spread of disease is the primary responsibility of what U. S. government agency

a) Food and Drug Administration

b) Centers for Disease Control and Prevention

c) Department of Health and Human Services

d) Department of Homeland Security

Answer: b

Difficulty: Easy
Learning Objective 1: LO 1.1 Explain the roles that microbes play in our world, outlining their beneficial and harmful contributions and uses in research.
Section Reference 1: Section 1.1

Question type: Multiple-Choice

37) The first person to use a microscope to observe cells invisible to the naked eye was:

a) Robert Hooke

b) Matthias Schleiden

c) Anton van Leeuwenhoek

d) Louis Pasteur

Answer: c

Difficulty: Medium
Learning Objective 1: LO 1. 3 Outline the historical milestones that contributed to the development of microbiology as a scientific discipline.
Section Reference 1: Section 1.3

Question type: Multiple-Choice

38) The curve in Pasteur's swan neck flasks was important because

a) it prevented flies from escaping the flask.

b) it allowed only warm air to reach the infusion.

c) it trapped microbes that otherwise would have entered the flask.

d) it prevented oxygen from reaching organisms inside the flask.

Answer: c

Difficulty: Medium
Learning Objective 1: LO 1. 3 Outline the historical milestones that contributed to the development of microbiology as a scientific discipline.
Section Reference 1: Section 1.3

Question type: Multiple-Choice

39) A pure culture refers to a culture:

a) containing bacteria that all have the same shape

b) which has never been used to inoculate a patient

c) which causes only a single disease

d) which contains only a single type of organism

Answer: d

Difficulty: Medium
Learning Objective 1: LO 1. 3 Outline the historical milestones that contributed to the development of microbiology as a scientific discipline.
Section Reference 1: Section 1.3

Question type: Multiple-Choice

40) Edward Jenner is best known for what contribution to the developing field of microbiology?

a) Developing some of the earliest vaccines

b) Disproving spontaneous generation

c) Controlling infections in patients

d) Developing methods of obtaining pure cultures of microorganisms

Answer: a

Difficulty: Easy
Learning Objective 1: LO 1.5 Summarize the importance of specialized fields in microbiology, including immunology, virology, chemotherapy, and molecular biology.

Question type: Multiple-Choice

41) From the following choices, who is not known primarily for their work with antibiotics?

a) Alexander Fleming

b) Gregor Mendel

c) Selman Waksman

d) Gerhard Domagk

Answer: b

Difficulty: Medium
Learning Objective 1: LO 1.5 Summarize the importance of specialized fields in microbiology, including immunology, virology, chemotherapy, and molecular biology.
Section Reference 1: Section 1.5

Question type: Multiple-Choice

42) Who first elucidated the structure of DNA?

a) Hershey and Chase

b) Avery, McCarty and MacLeod

c) Watson and Crick

d) Tatum and Beadle

Answer: c

Difficulty: Easy
Learning Objective 1: LO 1.5 Summarize the importance of specialized fields in microbiology, including immunology, virology, chemotherapy, and molecular biology.
Section Reference 1: Section 1.5

Question type: Multiple-Choice

43) The field of _____ involves studying how a person defends him/ herself against microbial infection.

a) molecular biology

b) virology

c) mycology

d) immunology

Answer: d

Difficulty: Easy
Learning Objective 1: LO 1.5 Summarize the importance of specialized fields in microbiology, including immunology, virology, chemotherapy, and molecular biology.
Section Reference 1: Section 1.5

Question type: Multiple-Choice

44) A microorganism that causes disease is _____ .

a) pathogenic

b) phagocytic

c) virulent

d) algae

Answer: a

Difficulty: Medium
Learning Objective 1: LO 1.5 Summarize the importance of specialized fields in microbiology, including immunology, virology, chemotherapy, and molecular biology.
Section Reference 1: Section 1.5

Question type: Multiple-Choice

45) The study of chemical reactions that occur in microbes is called _____.

a) microbial ecology

b) taxonomy

c) microbial metabolism

d) epidemiology

Answer: c

Difficulty: Easy
Learning Objective 1: LO 1.1 Explain the roles that microbes play in our world, outlining their beneficial and harmful contributions and uses in research.
Section Reference 1: Section 1.1

Question type: Multiple-Choice

46) Which of the following statements about pasteurization is false?

a) It originally involved heating a substance to 56°C in the absence of oxygen for 30 minutes.

b) It kills unwanted organisms.

c) Pasteurization was orginally developed as a method to keep milk from spoiling.

d) It was developed by Pasteur.

Answer: c

Difficulty: Hard
Learning Objective 1: LO 1.3 Outline the historical milestones that contributed to the development of microbiology as a scientific discipline.
Section Reference 1: Section 1.3

Question type: Multiple-Choice

47) Bacteriophages have been successfully used in all of the following circumstances, except:

a) to treat wounds of Soviet Union soldiers

b) prevent Listeria infections on cut apples and melons

c) remove *E. coli O157:H7* from herds of animals

d) attack weeds

Answer: d

Difficulty: Medium
Learning Objective 1: LO 1.5 Explain how advances in microbiological sciences have positively impacted medicine, agriculture, and food science.
Section Reference 1: Section 1.5

Question type: Multiple-Choice

48) Bioterrorism:

a) involves using antibiotics and vaccines for terrorist means

b) converts factories to produce tanks, trucks and cars

c) prevents getting bacteria into ground beef to keep our food supply safe

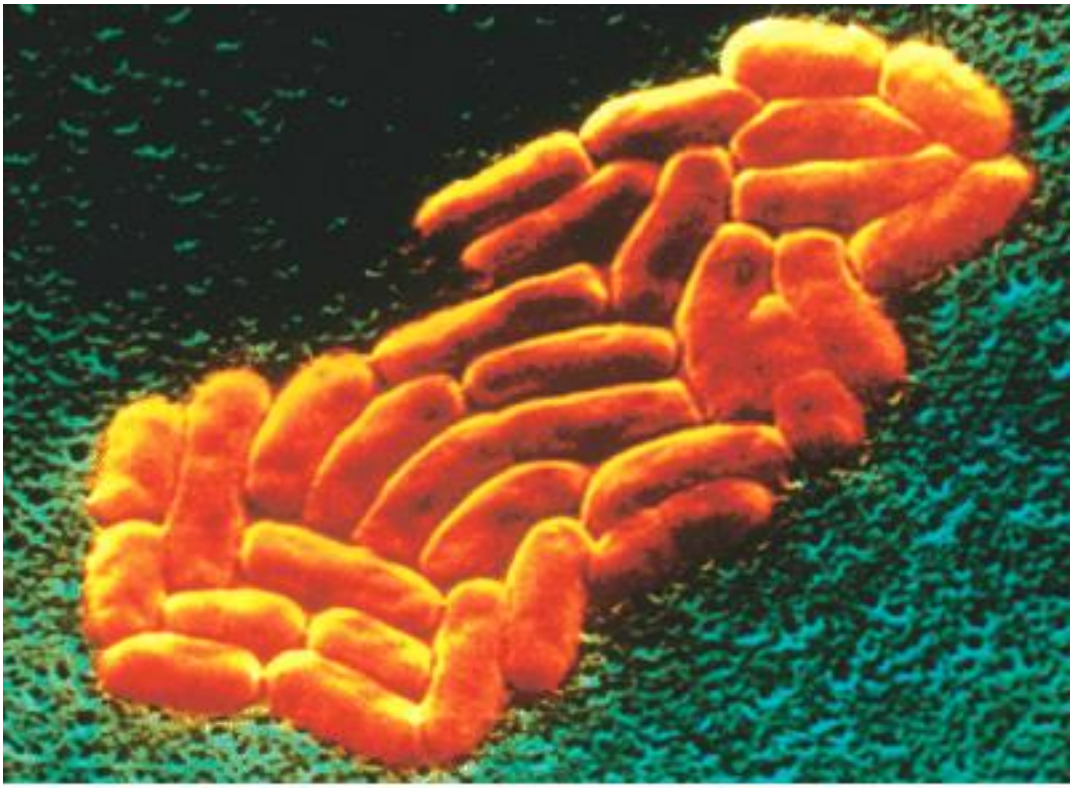
d) uses microbes, such as anthrax, as part of terrorist attacks

Answer: d

Difficulty: Easy
Learning Objective 1: LO 1.6 Explain how advances in microbiological sciences have positively impacted medicine, agriculture, and food science.
Section Reference 1: Section 1.6

Question type: Multiple-Choice

49) This microorganism can be observed with:



CNRI/Photo Researchers, Inc.

a) the naked eye

b) a light microscope

c) a scanning electron microscope

d) B and C are correct

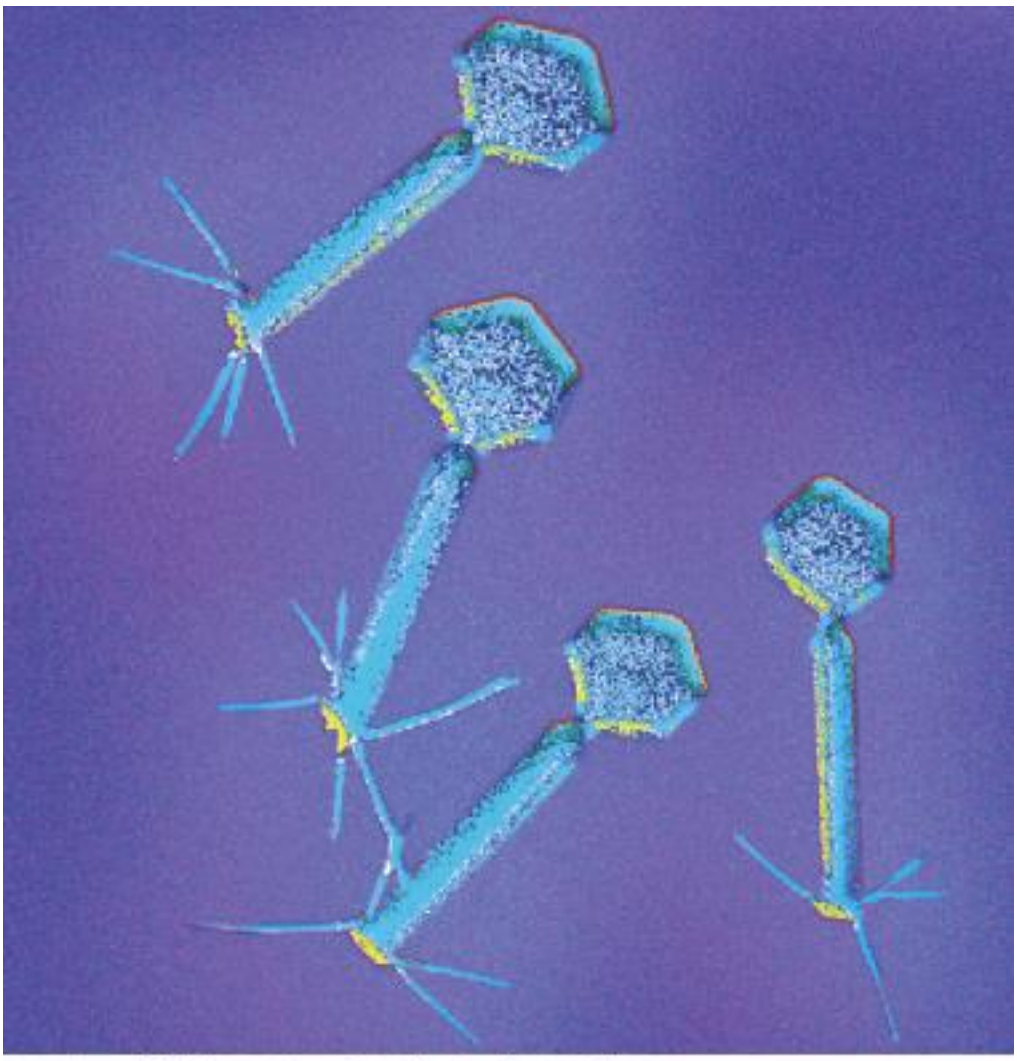
Answer: d

Difficulty: Medium
Learning Objective 1: LO 1.2 Distinguish between the different major taxonomical groups of microbes based on their cellular structure and the fields of microbiology with which they are frequently associated.

Section Reference 1: Section 1.2

Question type: Multiple-Choice

50) This microorganism can infect _____.



Dr. Harold Fisher/Visuals Unlimited/©Corbis

a) algae

b) bacteria

c) viruses

d) prions

Answer: b

Difficulty: Medium
Learning Objective 1: LO 1.2 Distinguish between the different major taxonomical groups of microbes based on their cellular structure and the fields of microbiology with which they are frequently associated.
Section Reference 1: Section 1.2