Microbiology: An Introduction, 13e (Tortora et al.)

Chapter 1 The Microbial World and You

1.1 Multiple-Choice Questions

1) Microorganisms are involved in each of the following processes EXCEPT
A) infection.
B) decomposition of organic material.
C) O_2 production.
D) food production.
E) smog production.
Answer: E
Section: 1.1
Bloom's Taxonomy: Remembering
Learning Outcome: 1.1
Global Outcome: 5

2) Each of the following organisms would be considered a microbe EXCEPT
A) yeast.
B) protozoan.
C) bacterium.
D) mushroom.
E) virus.
Answer: D
Section: 1.1
Bloom's Taxonomy: Remembering
Learning Outcome: 1.4

3) The term used to describe a disease-causing microorganism is
A) microbe.
B) bacterium.
C) virus.
D) pathogen.
E) infection.
Answer: D
Section: 1.1
Bloom's Taxonomy: Remembering
Learning Outcome: 1.1

4) Common commercial benefits of microorganisms include synthesis of
A) riboflavin.
B) acetone.
C) insulin.
D) aspirin.
E) riboflavin, acetone and insulin.
Answer: E
Section: 1.1
Bloom's Taxonomy: Remembering
ASMcue Outcome: 6.3
Learning Outcome: 1.1

5) What factors contribute to the rising incidence of antibiotic resistance?
A) overuse of the specific drugs
B) misuse of the specific drugs
C) random mutations in bacterial genomes
D) random mutations, overuse and misuse of specific drugs
E) overuse and misuse of specific drugs
Answer: D
Section: 1.5
Bloom's Taxonomy: Understanding
ASMcue Outcome: 4.1
Learning Outcome: 1.19
Global Outcome: 5

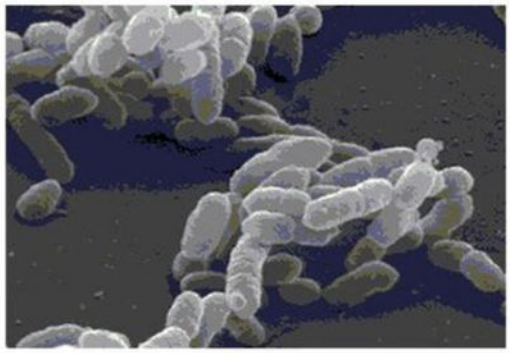
6) The formal system for classifying and naming organisms was developed by
A) Robert Koch.
B) Ignaz Semmelweis.
C) Aristotle.
D) Carolus Linnaeus.
E) Louis Pasteur.
Answer: D
Section: 1.2
Bloom's Taxonomy: Remembering
Learning Outcome: 1.3

7) In the name *Staphylococcus aureus*, *aureus* is the
A) genus.
B) domain name.
C) species.
D) kingdom.
E) family name.
Answer: C
Section: 1.2
Bloom's Taxonomy: Understanding
Learning Outcome: 1.3

8) A prokaryotic cell may possess each of the following cellular components EXCEPT
A) flagella.
B) a nucleus.
C) ribosomes.
D) a cell wall.
E) a cell membrane.
Answer: B
Section: 1.2
Bloom's Taxonomy: Remembering
ASMcue Outcome: 2.1
Learning Outcome: 1.4

9) Which of the following is NOT associated with viruses?
A) organelles
B) nucleic acid
C) envelope
D) chemical reactions
E) protein coat
Answer: A
Section: 1.2
Bloom's Taxonomy: Understanding
ASMcue Outcome: 2.1
Learning Outcome: 1.4

10) Figure 1.1



The bacterial shape of the cells in the scanning electron micrograph shown in Figure 1.1 would best be described as
A) bacillus.
B) spiral.
C) coccus.
D) ovoid.
E) columnar.
Answer: A
Section: 1.2
Bloom's Taxonomy: Understanding
ASMcue Outcome: 2.1
Learning Outcome: 1.4

11) Protozoan motility structures include
A) cilia.
B) flagella.
C) pseudopods.
D) cilia and pseudopods only.
E) cilia, flagella, and pseudopods.
Answer: E
Section: 1.2
Bloom's Taxonomy: Remembering
Learning Outcome: 1.4

12) Viruses are not considered living organisms because they
A) cannot reproduce by themselves.
B) are structurally very simple.
C) can only be visualized using an electron microscope.
D) are typically associated with disease.
E) are ubiquitous in nature.
Answer: A
Section: 1.2
Bloom's Taxonomy: Remembering
ASMcue Outcome: 4.4

Learning Outcome: 1.4

13) Microbes that live stably in and on the human body are called the
A) transient microbiota.
B) human microbiome.
C) pathogenic microorganisms.
D) virulent microorganisms.
E) opportunistic microbiota.
Answer: B
Section: 1.1
Bloom's Taxonomy: Remembering
ASMcue Outcome: 5.4
Learning Outcome: 1.2

14) Which of the following is NOT a domain in the three-domain system?
A) animalia
B) archaea
C) bacteria
D) eukarya
Answer: A
Section: 1.2
Bloom's Taxonomy: Remembering
ASMcue Outcome: 1.5
Learning Outcome: 1.5

15) A system of classification grouping organisms into 3 domains based on the cellular organization of organisms was devised by
A) Carolus Linnaeus.
B) Anton van Leewenhoek.
C) Carl Woese.
D) Louis Pasteur.
E) Robert Koch.
Answer: C
Section: 1.2
Bloom's Taxonomy: Remembering
ASMcue Outcome: 1.5
Learning Outcome: 1.5

16) Archaea differ from bacteria in that archaea
A) have cell walls composed of substances other than peptidoglycan.
B) lack nuclei.
C) use organic compounds for food.
D) reproduce by binary fission.
E) are prokaryotic.
Answer: A
Section: 1.2
Bloom's Taxonomy: Understanding
ASMcue Outcome: 2.3
Learning Outcome: 1.4

17) Who is credited with first observing cells?
A) Robert Hooke
B) Anton van Leeuwenhoek
C) Robert Koch
D) Louis Pasteur
E) Carolus Linnaeus
Answer: A
Section: 1.3
Bloom's Taxonomy: Remembering
ASMcue Outcome: 2.1
Learning Outcome: 1.6

18) Who is credited with first observing microorganisms?
A) Robert Hooke
B) Anton van Leeuwenhoek
C) Robert Koch
D) Louis Pasteur
E) Carolus Linnaeus
Answer: B
Section: 1.3
Bloom's Taxonomy: Remembering
ASMcue Outcome: 2.1
Learning Outcome: 1.6

19) Biogenesis refers to the
A) spontaneous generation of organisms from nonliving matter.
B) development of life forms from preexisting life forms.
C) development of aseptic technique.
D) germ theory of disease.
Answer: B
Section: 1.3
Bloom's Taxonomy: Remembering
Learning Outcome: 1.7

20) If you were setting up an experiment to disprove spontaneous generation in a liquid medium, which of the following would be essential to the experiment?
A) supplying the liquid with nutrients
B) starting with a liquid that contains microorganisms
C) adding antibiotics to the liquid
D) using a sterile liquid and eliminating exposure to microorganisms
E) adding carbon dioxide to the liquid
Answer: D
Section: 1.3
Bloom's Taxonomy: Understanding
Learning Outcome: 1.7

21) The arguments supporting spontaneous generation were finally disproved by
A) Louis Pasteur.
B) Francesco Redi.
C) Rudolf Virchow.
D) John Needham.
E) Lazzaro Spallanzani.
Answer: A
Section: 1.3
Bloom's Taxonomy: Remembering
Learning Outcome: 1.8

22) Regarding Louis Pasteur's experiments with the S-neck flask, which of the following statements is TRUE?
A) Air exchange was involved.
B) A food source was provided.
C) The possibility of contamination was removed.
D) All preexisting microorganisms were killed.
E) Air exchange occurred, a food source was provided, preexisting microorganisms were killed and contamination was prevented
Answer: E
Section: 1.3
Bloom's Taxonomy: Understanding
Learning Outcome: 1.8

23) The microbial process of converting sugars to alcohol is known as
A) fermentation.
B) pasteurization.
C) tyndallization.
D) lyophilization.
E) alcoholism.
Answer: A
Section: 1.3
Bloom's Taxonomy: Remembering
ASMcue Outcome: 3.1

Learning Outcome: 1.8

24) Proof that a microbe could cause disease was provided by
A) Pasteur.
B) Lister.
C) Koch.
D) Wasserman.
E) Semmelweis.
Answer: C
Section: 1.3
Bloom's Taxonomy: Remembering
ASMcue Outcome: 5.4
Learning Outcome: 1.10

25) The use of phenol (carbolic acid) as a wound disinfectant was first practiced by
A) Lister.
B) Semmelweis.
C) Pasteur.
D) Holmes.
E) Koch.
Answer: A
Section: 1.3
Bloom's Taxonomy: Remembering
ASMcue Outcome: 3.4
Learning Outcome: 1.9

26) Mycology is the study of
A) mycoplasma.
B) mushrooms.
C) protozoa.
D) molds.
E) molds, yeast, and mushrooms.
Answer: E
Section: 1.3
Bloom's Taxonomy: Remembering
Learning Outcome: 1.13

27) The first step for directly linking a microbe to a specific disease according to Koch's postulates is to
A) culture the blood or other body fluid from a diseased animal using nutrient medium.
B) inject a sample of blood or other body fluid from a diseased animal into a healthy animal.
C) obtain a sample of blood or other body fluid from a diseased animal.
D) compare the blood of a sick animal to blood obtained from a healthy animal.
E) isolate microbes from the blood of healthy animals.
Answer: C
Section: 1.3
Bloom's Taxonomy: Applying
ASMcue Outcome: 5.4
Learning Outcome: 1.10

28) In which of the following situations would Koch's postulates be utilized?
A) determination of the cause of a new emerging disease by scientists studying disease transmission
B) development of a new antibiotic in a pharmaceutical lab
C) determination of the cause of cancer in a patient
D) formulation of a vaccine against a new pathogen in a genetic engineering lab
E) whenever the scientific method is used to investigate a microbiological problem
Answer: A
Section: 1.3
Bloom's Taxonomy: Applying
ASMcue Outcome: 5.4
Learning Outcome: 1.10
Global Outcome: 5

29) Robert Koch identified the cause of
A) smallpox.
B) anthrax.
C) diphtheria.
D) AIDS.
E) rabies.
Answer: B
Section: 1.3
Bloom's Taxonomy: Remembering
ASMcue Outcome: 5.4
Learning Outcome: 1.10
Global Outcome: 5

30) Which physician is first associated with vaccination?
A) Ehrlich
B) Jenner
C) Lister
D) Koch
E) Escherich
Answer: B
Section: 1.3
Bloom's Taxonomy: Remembering
ASMcue Outcome: 6.3
Learning Outcome: 1.11
Global Outcome: 5

31) Which of the following findings was essential for Edward Jenner's vaccination process?
A) Exposure to a milder disease form may produce immunity.
B) A weakened microorganism will not cause disease.
C) Someone who recovers from a disease will not acquire that disease again.
D) Disease is caused by viruses.
E) Pathogenic microorganisms infect all humans and animals in the same manner.
Answer: A
Section: 1.3
Bloom's Taxonomy: Understanding
ASMcue Outcome: 6.3
Learning Outcome: 1.11
Global Outcome: 5

32) Penicillin was discovered by accident by
A) Alexander Fleming.
B) Paul Ehrlich.
C) Edward Jenner.
D) Robert Koch.
E) Joseph Lister.
Answer: A
Section: 1.3
Bloom's Taxonomy: Remembering
ASMcue Outcome: 3.4
Learning Outcome: 1.12
Global Outcome: 5

33) Who was the first scientist to pursue a "magic bullet" that could be used to treat infectious disease?
A) Jenner
B) Pasteur
C) Ehrlich
D) Lister
E) Semmelweis
Answer: C
Section: 1.3
Bloom's Taxonomy: Remembering
ASMcue Outcome: 3.4
Learning Outcome: 1.12
Global Outcome: 5

34) Fungal infections are studied by
A) virologists.
B) bacteriologists.
C) parasitologists.
D) mycologists.
E) herpetologists.
Answer: D
Section: 1.3
Bloom's Taxonomy: Remembering
ASMcue Outcome: 5.4
Learning Outcome: 1.13

35) When our bodies overcome the offensive tactics of a particular microorganism, this is referred to as
A) therapy.
B) colonization.
C) disease.
D) resistance.
E) deficiency.
Answer: D
Section: 1.5
Bloom's Taxonomy: Remembering
ASMcue Outcome: 5.4
Learning Outcome: 1.17

36) Recombinant DNA refers to the
A) study of bacterial ribosomes.
B) study of the function of genes.
C) interaction between human and bacterial cells.
D) synthesis of proteins from genes.
E) DNA resulting when genes from one organism are inserted into another organism.
Answer: E
Section: 1.3
Bloom's Taxonomy: Remembering
ASMcue Outcome: 4.5
Learning Outcome: 1.14

37) Molecular biology includes the study of
A) DNA synthesis.
B) RNA replication.
C) protein synthesis.
D) enzyme function.
E) how genetic information directs protein synthesis.
Answer: E
Section: 1.3
Bloom's Taxonomy: Understanding
ASMcue Outcome: 4.2
Learning Outcome: 1.14

38) Microorganisms are essential to our life. Each of the following is an example of a beneficial function of microorganisms EXCEPT
A) alternative fuel production.
B) bioremediation.
C) gene therapy.
D) agriculture.
E) increased number of illnesses.
Answer: E
Section: 1.4
Bloom's Taxonomy: Remembering
ASMcue Outcome: 6.3
Learning Outcome: 1.15
Global Outcome: 5

39) The major food producers for other living organisms is/are
A) higher plants.
B) cyanobacteria.
C) algae.
D) higher plants and algae.
E) higher plants, cyanobacteria, and algae.
Answer: E
Section: 1.4
Bloom's Taxonomy: Remembering
ASMcue Outcome: 6.1
Learning Outcome: 1.15

40) Gene therapy is currently used to treat all of the following diseases EXCEPT
A) severe combined immunodeficiency disease (SCID).
B) Duchenne's muscular dystrophy.
C) cystic fibrosis.
D) LDL-receptor deficiency.
E) colon cancer.
Answer: E
Section: 1.4
Bloom's Taxonomy: Remembering
ASMcue Outcome: 6.3
Learning Outcome: 1.16
Global Outcome: 5

41) Recombinant DNA technology has become an increasingly important part of our life. It is used for all of the following EXCEPT
A) vaccine production.
B) enhancing food longevity.
C) synthesis of water.
D) drug production.
E) increasing the nutritional value of food.
Answer: C
Section: 1.4
Bloom's Taxonomy: Remembering
ASMcue Outcome: 6.3
Learning Outcome: 1.16
Global Outcome: 5

42) Normal microbiota
A) indefinitely colonize the body.
B) take up residence in sites such as the colon and mouth.
C) almost always cause disease in the host.
D) are normally found in blood.
E) both indefinitely colonize the body and take up residence in sites such as the colon and mouth.
Answer: E
Section: 1.1
Bloom's Taxonomy: Understanding
ASMcue Outcome: 5.4
Learning Outcome: 1.2

43) Which of the following statements about biofilms is FALSE?
A) Compared to free-living bacteria, biofilms are more sensitive to antibiotics.
B) Biofilms in pipes can block the flow of water.
C) Biofilms in your body protect mucous membranes from harmful microbes.
D) Biofilms on medical devices cause infections.
E) Biofilms on rocks provide food for animal life.
Answer: A
Section: 1.5
Bloom's Taxonomy: Remembering
ASMcue Outcome: 6.1
Learning Outcome: 1.18

44) Development of emerging infectious disease can be a result of all of the following EXCEPT
A) microbial mutation.
B) modern transportation.
C) use of genetically modified foods.
D) changes in the environment.
E) overuse of antibiotics.
Answer: C
Section: 1.5
Bloom's Taxonomy: Remembering
ASMcue Outcome: 1.3
Learning Outcome: 1.19

45) Who challenged the idea of spontaneous generation with the concept of biogenesis?
A) Louis Pasteur
B) Rudolf Virchow
C) Anton van Leewenhoek
D) John Needham
E) Francesco Redi
Answer: B
Section: 1.3
Bloom's Taxonomy: Remembering
Learning Outcome: 1.8