Prescott's Microbiology, 11e **(Willey)**
Chapter 1 The Evolution of Microorganisms and Microbiology

1) Extant microorganisms are organisms from the fossil record that are no longer present on Earth today.

Answer: FALSE
Topic: Taxonomy of Microorganisms
Bloom's/Accessibility: 2. Understand / Keyboard Navigation
ASM Topic: Module 01 Evolution
ASM Objective: 01.05 The evolutionary relatedness of organisms is best reflected in phylogenetic trees.
Learning Outcome: 01.02a Propose a timeline of the origin and history of microbial life and integrate supporting evidence into it

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

Answer: domains
Topic: Taxonomy of Microorganisms
Bloom's/Accessibility: 2. Understand / Keyboard Navigation
ASM Topic: Module 01 Evolution
ASM Objective: 01.05 The evolutionary relatedness of organisms is best reflected in phylogenetic trees.
Learning Outcome: 01.01b Explain Carl Woeses contributions in establishing the three-domain system for classifying cellular life

3) *Archaea* are cellular organisms that have unique cell membrane _____.

Answer: lipids
Topic: Archaea
Bloom's/Accessibility: 1. Remember / Keyboard Navigation
ASM Topic: Module 02 Cell Structure and Function
ASM Objective: 02.03 Bacteria and Archaea have specialized structures (e.g. flagella, endospores, and pili) that often confer critical capabilities.
Learning Outcome: 01.01c Determine the type of microbe (e.g., bacterium, fungus, etc.) when given a description of a newly discovered one

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

Answer: FALSE
Topic: Taxonomy of Microorganisms
Bloom's/Accessibility: 2. Understand / Keyboard Navigation
ASM Topic: Module 05 Microbial Systems
ASM Objective: 05.04 Microorganisms, cellular and viral, can interact with both human and nonhuman hosts in beneficial, neutral or detrimental ways.
Learning Outcome: 01.01a Define the term microbiology

5) All eukaryotes have a membrane-delimited nucleus.

Answer: TRUE
Topic: Taxonomy of Microorganisms
Bloom's/Accessibility: 2. Understand / Keyboard Navigation
ASM Topic: Module 02 Cell Structure and Function
ASM Objective: 02.04 While microscopic eukaryotes (for example, fungi, protozoa and algae) carry out some of the same processes as bacteria, many of the cellular properties are fundamentally different.
Learning Outcome: 01.01c Determine the type of microbe (e.g., bacterium, fungus, etc.) when given a description of a newly discovered one

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

Answer: FALSE
Topic: Taxonomy of Microorganisms
Bloom's/Accessibility: 2. Understand / Keyboard Navigation
ASM Topic: Module 05 Microbial Systems
ASM Objective: 02.05 The replication cycles of viruses (lytic and lysogenic) differ among viruses and are determined by their unique structures and genomes.
Learning Outcome: 01.01a Define the term microbiology

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

Answer: FALSE
Topic: Taxonomy of Microorganisms
Bloom's/Accessibility: 2. Understand / Keyboard Navigation
ASM Topic: Module 01 Evolution
ASM Objective: 01.05 The evolutionary relatedness of organisms is best reflected in phylogenetic trees.
Learning Outcome: 01.01b Explain Carl Woeses contributions in establishing the three-domain system for classifying cellular life

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

Answer: B
Topic: Taxonomy of Microorganisms
Bloom's/Accessibility: 1. Remember / Keyboard Navigation
ASM Topic: Module 01 Evolution
ASM Objective: 01.05 The evolutionary relatedness of organisms is best reflected in phylogenetic trees.
Learning Outcome: 01.01b Explain Carl Woeses contributions in establishing the three-domain system for classifying cellular life

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

Answer: B
Topic: Taxonomy of Microorganisms
Bloom's/Accessibility: 2. Understand / Keyboard Navigation
ASM Topic: Module 02 Cell Structure and Function
ASM Objective: 02.04 While microscopic eukaryotes (for example, fungi, protozoa and algae) carry out some of the same processes as bacteria, many of the cellular properties are fundamentally different.
Learning Outcome: 01.01c Determine the type of microbe (e.g., bacterium, fungus, etc.) when given a description of a newly discovered one

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

Answer: A
Topic: Bacterial Cellular Morphology
Bloom's/Accessibility: 2. Understand / Keyboard Navigation
ASM Topic: Module 02 Cell Structure and Function
ASM Objective: 02.01 The structure and function of microorganisms have been revealed by the use of microscopy (including bright field, phase contrast, fluorescent, and electron).
Learning Outcome: 01.01c Determine the type of microbe (e.g., bacterium, fungus, etc.) when given a description of a newly discovered one

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

Answer: B
Topic: Taxonomy of Microorganisms
Bloom's/Accessibility: 1. Remember / Keyboard Navigation
ASM Topic: Module 01 Evolution
ASM Objective: 01.05 The evolutionary relatedness of organisms is best reflected in phylogenetic trees.
Learning Outcome: 01.01b Explain Carl Woeses contributions in establishing the three-domain system for classifying cellular life

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

Answer: D
Topic: Bacterial Cellular Morphology
Bloom's/Accessibility: 2. Understand / Keyboard Navigation
ASM Topic: Module 03 Metabolic Pathways
ASM Objective: 03.01 Bacteria and Archaea exhibit extensive, and often unique, metabolic diversity (e.g. nitrogen fixation, methane production, anoxygenic photosynthesis).
Learning Outcome: 01.01a Define the term microbiology

13) RNA serves to convert the information stored in DNA to _____.

A) carbohydrates
B) protein
C) lipids
D) RNA

Answer: B
Topic: Bacteria
Bloom's/Accessibility: 2. Understand / Keyboard Navigation
ASM Topic: Module 04 Information Flow and Genetics
ASM Objective: 04.02 Although the central dogma is universal in all cells, the processes of replication, transcription, and translation differ in Bacteria, Archaea, and Eukaryotes.
Learning Outcome: 01.02a Propose a timeline of the origin and history of microbial life and integrate supporting evidence into it

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

Answer: FALSE
Topic: Bacteria
Bloom's/Accessibility: 1. Remember / Keyboard Navigation
ASM Topic: Module 01 Evolution
ASM Objective: 01.05 The evolutionary relatedness of organisms is best reflected in phylogenetic trees.
Learning Outcome: 01.01b Explain Carl Woeses contributions in establishing the three-domain system for classifying cellular life

15) 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.

Answer: C
Topic: History of Microbiology
Bloom's/Accessibility: 2. Understand / Keyboard Navigation
ASM Topic: Module 02 Cell Structure and Function
ASM Objective: 02.01 The structure and function of microorganisms have been revealed by the use of microscopy (including bright field, phase contrast, fluorescent, and electron).
Learning Outcome: 01.01a Define the term microbiology

16) 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

Answer: B
Topic: History of Microbiology
Bloom's/Accessibility: 1. Remember / Keyboard Navigation
ASM Topic: Module 05 Microbial Systems
ASM Objective: 05.04 Microorganisms, cellular and viral, can interact with both human and nonhuman hosts in beneficial, neutral or detrimental ways.
Learning Outcome: 01.03b Outline a set of experiments that might be used to decide if a particular microbe is the causative agent of a disease

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

Answer: C
Topic: History of Microbiology
Bloom's/Accessibility: 1. Remember / Keyboard Navigation
ASM Topic: Module 02 Cell Structure and Function
ASM Objective: 02.01 The structure and function of microorganisms have been revealed by the use of microscopy (including bright field, phase contrast, fluorescent, and electron).
Learning Outcome: 01.03a Evaluate the importance of the contributions to microbiology made by Hooke, Leeuwenhoek, Pasteur, Lister, Koch, Beijerinck, von Behring, Kitasato, Metchnikoff, and Winogradsky

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

Answer: A
Topic: History of Microbiology
Bloom's/Accessibility: 1. Remember / Keyboard Navigation
ASM Topic: Module 05 Microbial Systems
ASM Objective: 05.04 Microorganisms, cellular and viral, can interact with both human and nonhuman hosts in beneficial, neutral or detrimental ways.
Learning Outcome: 01.03a Evaluate the importance of the contributions to microbiology made by Hooke, Leeuwenhoek, Pasteur, Lister, Koch, Beijerinck, von Behring, Kitasato, Metchnikoff, and Winogradsky

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

Answer: C
Topic: History of Microbiology
Bloom's/Accessibility: 1. Remember / Keyboard Navigation
ASM Topic: Module 05 Microbial Systems
ASM Objective: 05.01 Microorganisms are ubiquitous and live in diverse and dynamic ecosystems.
Learning Outcome: 01.03a Evaluate the importance of the contributions to microbiology made by Hooke, Leeuwenhoek, Pasteur, Lister, Koch, Beijerinck, von Behring, Kitasato, Metchnikoff, and Winogradsky