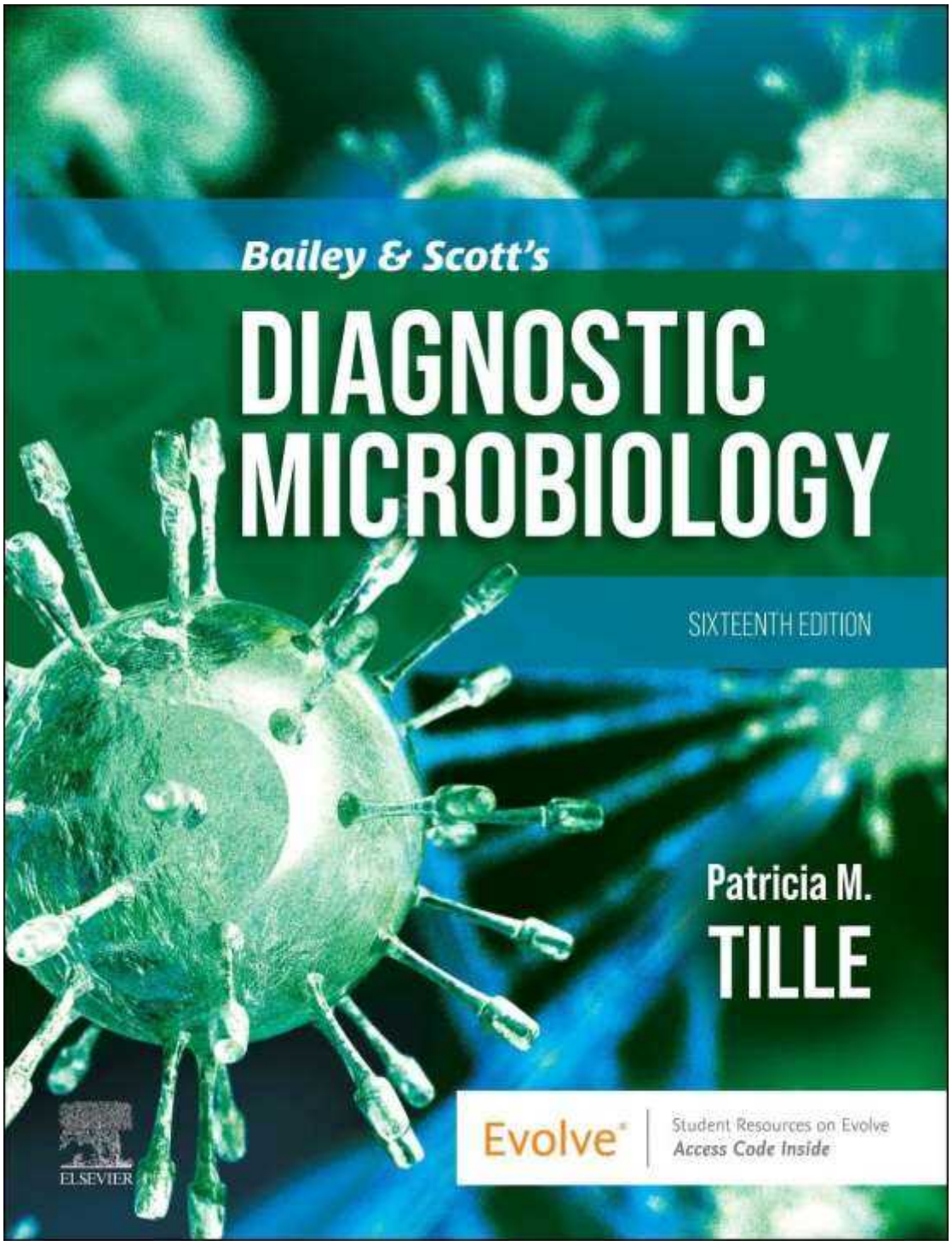
TEST BANK

Bailey & Scott's Diagnostic Microbiology

Patricia M. Tille

16th Edition



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Chapter 01: Microbial Taxonomy.

MULTIPLE CHOICE

1. **Taxonomy can be described as a system that:**
   a. classifies, names, and identifies microorganisms in a consistent manner.
   b. classifies microorganisms, based on their genetic makeup.
   c. classifies microorganisms, based on their phenotypic makeup.
   d. classifies microorganisms, based on their cellular and colonial traits.

   ANSWER: A

   Taxonomy is a system that consistently classifies, names, and identifies microorganisms. Although organisms have genotypic and phenotypic characteristics, as well as cellular and colonial characteristics, answer b best describes the term *y*.

   REF: 1 **OBJ:** **Level:** Knowledge

2. **The most basic taxonomic group that can be defined as a collection of bacterial strains that share many common physiologic and genetic features is:**
   a. genus.
   b. species.
   c. class.
   d. kingdom.

   ANSWER: B

   Bacteria are classified into the same species, based on their physiologic and genetic similarities and their differences from bacteria in other species.

   REF: 1 **OBJ:** **Level:** Knowledge

3. **Colonial and microscopic morphologic properties, along with the pigmentation of colonies, would belong to a microorganism group of ____characteristics.**
   a. genotypic
   b. taxonomic
   c. phenotypic
   d. subspecies

   ANSWER: C

   Phenotypic characteristics are the observable properties of the subject.

   REF: 2–3 **OBJ:** **Level:** Application

4. **Which binomial name is correctly written?**
   a. [illegible]
   b. Escherichia [illegible]
   c. [illegible]coli
   d. [illegible]

   ANSWER: A

The genus should be capitalized, and the species should be in lowercase. The entire name is either italicized or underlined.

REF: 2 **OBJ:** **Level:** Application

5. **The use of a double genus in a microorganism's label, such as *Burkholderia (Pseudomonas),***
indicates that the bacterium:
   a. does not fit well in either group but has some characteristics of both groups.
   b. is a genetic cross between the two groups.
   c. has been moved from one genus [illegible] to another genus [illegible]
   d. has been moved from one genus [illegible] to another genus [illegible]

   ANSWER: C
   A name of an organism may change as scientists learn more about the organism. An older name is often included in parentheses next to the current name to alleviate confusion about the identity of the organism.

   REF: 2 **OBJ:** **Level:** Application

6. **A bacterium that has been moved from one genus *(Pseudomonas)* to another genus (*Burkholderia)* would be correctly noted as which one of the following?**
   a. [illegible]
   b. [illegible]
   c. [illegible], formerly [illegible]
   d. [illegible], formerly [illegible]

   ANSWER: B
   The name of an organism may change as scientists learn more about the organism. An older name is often included in parentheses next to the current name to alleviate confusion about the identity of the organism.

   REF: 2 **OBJ:** **Level:** Application

7. The taxon that is composed of similar species that have several important features in common but differ sufficiently to still maintain their status as individual species is which one of the following?
   a. Class
   b. Order
   c. Family
   d. Genus

   ANSWER: D
   The genus is composed of similar species.

   REF: 1 **OBJ:** **Level:** Knowledge

8. **Which binomial name is correctly written?**
   a. [illegible]
   b. staphylococcus [illegible]
   c. [illegible]
   [illegible]

ANSWER: C
The genus should be capitalized, and the species should be in lowercase. The entire name is either italicized or underlined.

REF: 2 **OBJ:** **Level:** Application

9. **An example of an organism's genotypic characteristic is its:**
   a. macroscopic morphologic structure.
   b. microscopic morphologic structure.
   c. nucleic acid composition.
   d. antigenic properties.

ANSWER: C
The organism's nucleic acid composition—deoxyribonucleic acid (DNA) and ribonucleic acid (RNA)—is a genotypic characteristic. All of the other choices are phenotypic characteristics.

REF: 2–3 **OBJ:** **Level:** Knowledge

10. **An organism is serologically identified in the clinical laboratory. This is an example of which phenotypic property?**
    a. Subcellular properties
    b. Antigenic properties
    c. Resistant profiles
    d. Nucleic acid sequence analysis

ANSWER: B
Serologic methods examine the organism's antigenic properties.

REF: 3 **OBJ:** **Level:** Application

Chapter 02: Bacterial Genetics, Metabolism, and Structure

MULTIPLE CHOICE

1. **Pieces of deoxyribonucleic acid (DNA) that move from one genetic element to another and contain genes for movement and genes for other features are called:**
   a. transposons.
   b. insertion sequences.
   c. plasmids.
   d. chromatoids.

   ANSWER: A
   Insertion sequences only code for movement.

   REF: 7 **OBJ:** **Level:** Knowledge

2. **Miniature chromosomes composed of several genes in double-stranded, closed, circular structures are called:**
   a. transposons.
   b. insertion sequences.
   c. plasmids.
   d. chromatoids.

   ANSWER: C
   Plasmids can be separate entities, but transposable elements (transposons and insertion sequences) cannot.

   REF: 5 | 7 **OBJ:** **Level:** Knowledge

3. **A DNA sequence that encodes for a specific product (ribonucleic acid [RNA] or protein) is defined as a:**
   a. gene.
   b. genome.
   c. nucleotide.
   d. deoxyribonucleic acid.

   ANSWER: A
   The genome is the collection of all the genes of an organism. Nucleotides and DNA are building blocks of genes.

   REF: 5 **OBJ:** **Level:** Knowledge

4. **The enzyme that adds nucleotide bases to each growing daughter strand in the replication process is called:**
   a. replication enzymes.
   b. DNA polymerase.
   c. insertion sequence enzymes.
   d. transcriptase.

   ANSWER : B

DNA polymerase is a specific type of replication enzyme.

REF: 7–8 **OBJ:** **Level:** Knowledge

5. **If a bacterial cell encounters unfavorable environmental conditions, then its metabolism will begin to slow until it eventually transforms into an inactive, dormant state. This survival mechanism is known as:**
   a. polymerization.
   b. oxidation.
   c. respiration.
   d. sporulation.

   ANSWER: D
   Organisms sporulate when unfavorable conditions are encountered and remain in this state until favorable conditions return.

   REF: 21 **OBJ:** **Level:** Knowledge

6. **Teichoic acids, mycolic acids, peptidoglycan, and disaccharide-pentapeptide subunits are all building blocks of which bacterial structure?**
   a. Outer cell membrane
   b. Flagella
   c. Inner cell membrane
   d. Cell wall

   ANSWER: D
   These elements are all part of the cell walls of some types of bacteria.

   REF: 19–20 **OBJ:** **Level:** Knowledge

7. **The major difference between gram-positive and gram-negative bacteria is that:**
   a. the peptidoglycan layer in gram-positive bacteria is substantially thinner than in gram-negative bacteria.
   b. gram-positive bacteria contain a periplasmic space, whereas gram- negative bacteria do not.
   c. flagella are only present in gram-positive bacteria.
   d. gram-negative bacteria contain an outer membrane that functions as the cell's initial barrier to the environment.

   ANSWER: D
   Gram-negative bacteria contain an outer membrane, but gram-positive bacteria do not.

   REF: 19 **OBJ:** **Level:** Knowledge

8. **In gene regulation and control, *repression* is defined as the:**
   a. internal change in the original nucleotide sequence of a gene or genes within an organism's genome.
   b. mechanism of genetic control in which genes are induced only when the substrate to be degraded by enzymatic action is present.
   c. change of the bacterial genotypes through the exchange of DNA from one cell to another.
   d. mechanism of genetic control in which genes are not transcribed and therefore are

not expressed in the presence of those target products in sufficient supply.

ANSWER: D
To avoid waste and overproduction of enzymes in the cell, some genes are *turned off* by the presence of the product of that gene expression.

REF: 11 **OBJ:** **Level:** Knowledge

9. **In gene regulation and control, *induction* can be defined as the:**
   a. mechanism of genetic control in which genes are induced only when the substrate to be degraded by enzymatic action is present.
   b. uptake of free DNA from the environment and recombination with the recipient's homologous DNA.
   c. mechanism of genetic control in which genes are not transcribed and therefore are not expressed in the presence of those target products in sufficient supply.
   d. change of the bacterial genotypes through the exchange of DNA from one cell to another.

ANSWER: A
To avoid waste and overproduction of enzymes in the cell, some genes are [illegible] only by the presence of the substrate of that gene expression.

REF: 11 **OBJ:** **Level:** Knowledge

10. ***Mutation* is defined as the:**
    a. change of the bacterial genotypes through the exchange of DNA from one cell to another.
    b. internal change in the original nucleotide sequence of a gene or genes within an organism's genome.
    c. process by which genetic elements such as plasmids and transposons excise from one genomic location and insert into another.
    d. uptake of free DNA from the environment and recombination with the recipient's homologous DNA.

ANSWER: B
Mutation occurs as an internal change in the original nucleotide sequence of a gene or genes within an organism's genome.

REF: 12 **OBJ:** **Level:** Knowledge

11. ***Recombination* is defined as the:**
    a. change of the bacterial genotypes through the exchange of DNA from one cell to another.
    b. internal change in the original nucleotide sequence of a gene or genes within an organism's genome.
    c. process by which genetic elements such as plasmids and transposons excise from one genomic location and insert into