SELF-TESTS

In the matching section, there is only one answer to each question; however, the lettered options (a, b, c, etc.) may be used more than once or not at all.

I. Matching

___ 1. Helical; move by flagella, if present.

___ 2. Spherical; in chains.

___ 3. Divide in three regular planes; spheres form cubelike packets.

___ 4. Helical; axial filaments for motility.

___ 5. A simple, commalike curve.

___ 6. Name means "little staff."

___ 7. Ovals.

a. Sarcinae

b. Tetrads

c. Streptococci

d. Spirochetes

e. Vibrios

f. Bacilli

g. Cocci

h. Spirilla

i. Diplococci

j. Coccobacilli

II. Matching

___ 1. Golgi complex.

___ 2. Meiosis occurs in reproduction.

___ 3. Usually single circular chromosome without histones.

___ 4. Sterols generally present in cell membrane.

___ 5. Cell wall almost always contains peptidoglycans.

___ 6. Nucleus bounded by a membrane.

a. Eukaryotic cell

b. Prokaryotic cell

III. Matching

___ 1. Contain pigments for photosynthesis by bacteria; found in the plasma membrane.

___ 2. Gram-negative bacterial cells after their treatment with lysozyme.

___ 3. Specialized external structures that assist in the transfer of genetic material between cells.

___ 4. Numerous short, hairlike appendages that help in attachment to mucous membranes.

___ 5. General term for substances surrounding bacterial cells.

___ 6. Polysaccharides found in the cell wall of many gram-positive bacteria.

___ 7. Inclusions of iron oxide.

a. Glycocalyx
b. Flagellin
c. Fimbriae
d. Sex pili
e. Capsules
f. Teichoic acids
g. Spheroplasts
h. Protoplasts
i. Chromatophores
j. Chloroplasts
k. Magnetosomes

IV. Matching

___ 1. Metachromatic granules of stored phosphate in prokaryotes.

___ 2. Entrance of fluids and dissolved substances into eukaryotic cells.

___ 3. Membrane-enclosed spheres in phagocytic cells that contain powerful digestive enzymes.

___ 4. The "powerhouses" of the cell.

___ 5. A gel-like fluid found in the eukaryotic nucleus.

___ 6. A folded inner membrane found in mitochondria.

___ 7. Sometimes contributes to movement of a cell.

___ 8. Found in walls of acid-fast bacteria.

a. Volutin
b. Plasmids
c. Cristae
d. Zymogens
e. Ribosomes
f. Nucleoplasm
g. Lysosomes
h. Mitochondria
i. Phagocytosis
j. Pinocytosis
k. Cytoplasmic streaming
l. Mycolic acid

V. Matching

___ 1. Arrangement of flagella distributed over the entire cell.

___ 2. A single flagellum at each end of the cell.

___ 3. A widening at the base of the flagellar filament.

___ 4. An enzyme affecting gram-positive cell walls; found in tears.

___ 5. A compound found in bacterial endospores.

___ 6. A compound frequently found in the cell walls of yeasts.

___ 7. No flagella.

a. Exocytosis
b. Dipicolinic acid
c. Chitin
d. Lysozyme
e. Hook
f. Peritrichous
g. Amphitrichous
h. Lophotrichous
i. Monotrichous
j. Atrichous
k. Flagellin

VI. Matching

___ 1. Closely involved in protein synthesis.

___ 2. Structure(s) characteristic of both eukaryotic and prokaryotic plasma membranes.

___ 3. Found in the flagella and cilia of eukaryotic cells.

a. Phospholipid bilayer
b. Transverse septum
c. Microtubules
d. Ribosomes

VII. Matching

___ 1. Highly resistant bodies formed by a few bacterial species.

___ 2. Small circular DNA molecules that are not connected with the main chromosome.

___ 3. The semifluid center portion of the mitochondrion.

___ 4. A substance similar to peptidoglycan that is found in the cell wall of archaea.

___ 5. Bacteria with irregular morphology.

a. Plasmids
b. Endospores
c. Pseudomurein
d. Matrix
e. Pleomorphic

VIII. Matching

___ 1. Extracellular polymeric substances on some bacterial cells; may help cells adhere to surfaces.

___ 2. Bacterial cell with thin peptidoglycan layer, outer membrane of lipopolysaccharide.

___ 3. Protein that forms fimbriae.

___ 4. Bundles of microtubules that probably play a role in cell division of eukaryotic cells.

___ 5. Bacteria that have lost their cell walls and may later spontaneously regain them.

a. Glycocalyx
b. Pilin
c. Gram-positive
d. Gram-negative
e. Centrioles
f. L-forms

IX. Matching

___ 1. ER associated with ribosomes.

___ 2. Ingrowth of plasma membrane before endospore formation.

___ 3. Anchors the flagella of bacteria to the cell wall and plasma membrane.

a. Septum
b. Forespore
c. Rough ER
d. Smooth ER
e. Basal body

Fill in the Blanks

1. Chemically, the capsule is a _____, a polypeptide, or both.
2. Capsules protect pathogenic bacteria from _____, a process by which protective host cells engulf and destroy microorganisms.
3. The Golgi complex consists of flattened sacs called _____ that are connected to the endoplasmic reticulum.
4. The _____ complex consists of four to eight flattened sacs connected to the endoplasmic reticulum. The function is largely secretion of proteins, lipids, and carbohydrates.
5. The term _____ means a lower concentration of solutes outside the cell than inside.

6. Three examples of passive diffusion across membranes are _____, _____, and _____.
7. The protein in the flagellar filaments of bacteria is called _____.
8. DNA in eukaryotic cells is combined with protein _____ and nonhistones.

Critical Thinking

1. What is a glycocalyx? How is the presence of a glycocalyx related to bacterial virulence?

2. What substances are able to cross the plasma membrane most easily?

3. Describe how a bacterial cell will respond to the following osmotic pressures: isotonic, hypotonic, hypertonic.

4. How is the presence of peptidoglycan in bacterial cells clinically significant?

5. Discuss the endosymbiont hypothesis. Is there any evidence to support the endosymbiont hypothesis?