

Biology, 7e (Campbell)

Chapter 6: A Tour of the Cell

Chapter Questions

- 1) What limits the resolving power of a light microscope?
- A) the type of lens used to magnify the object under study
 - B) the shortest wavelength of light used to illuminate the specimen
 - C) the type of lens that focuses a beam of electrons through the specimen
 - D) the type of heavy metal or dye that is used to stain the specimen
 - E) the ratio of an object's image to its real size

Answer: B

Topic: Concept 6.1

Skill: Knowledge

- 2) When biologists wish to study the internal ultrastructure of cells, they most likely would use
- A) a light microscope.
 - B) a scanning electron microscope.
 - C) a transmission electronic microscope.
 - D) A and C only
 - E) A, B, and C

Answer: C

Topic: Concept 6.1

Skill: Knowledge

- 3) The advantage of light microscopy over electron microscopy is that
- A) light microscopy provides for higher magnification than electron microscopy.
 - B) light microscopy provides for higher resolving power than electron microscopy.
 - C) light microscopy allows one to view dynamic processes in living cells.
 - D) both A and B
 - E) both B and C

Answer: C

Topic: Concept 6.1

Skill: Knowledge

- 4) A primary objective of cell fractionation is to
- A) view the structure of cell membranes.
 - B) identify the enzymes outside the organelles.
 - C) determine the size of various organelles.
 - D) separate the major organelles so their particular functions can be determined.
 - E) crack the cell wall so the cytoplasmic contents can be released.

Answer: D

Topic: Concept 6.1

Skill: Knowledge

5) In the fractionation of homogenized cells using centrifugation, the primary factor that determines whether a specific cellular component ends up in the supernatant or the pellet is

- A) the relative solubility of the component.
- B) the size and weight of the component.
- C) the percentage of carbohydrates in the component.
- D) the number of enzymes in the fraction.
- E) the presence or absence of lipids in the component.

Answer: B

Topic: Concept 6.1

Skill: Knowledge

6) Which of the following *correctly* lists the order in which cellular components will be found in the pellet when homogenized cells are treated with increasingly rapid spins in a centrifuge?

- A) ribosomes, nucleus, mitochondria
- B) chloroplasts, ribosomes, vacuoles
- C) nucleus, ribosomes, chloroplasts
- D) vacuoles, ribosomes, nucleus
- E) nucleus, mitochondria, ribosomes

Answer: E

Topic: Concept 6.1

Skill: Comprehension

7) Quantum dots are small (15-30 nm diameter), bright particles visible using light microscopy. If the dots can be specifically bound to individual proteins on a plasma membrane of a cell, which of the following *correctly* describes the advantage of using quantum dots in examining proteins?

- A) The dots permit the position of the proteins to be determined more precisely.
- B) The dots permit the average distance between the proteins to be determined more precisely.
- C) The dots permit the size of the proteins to be determined more precisely.
- D) The dots permit the motion of the proteins to be determined more precisely.
- E) All of the above are correct.

Answer: D

Topic: Concept 6.1

Skill: Application

8) Which of the following are prokaryotic cells?

- A) plants
- B) fungi
- C) bacteria
- D) animals
- E) B and C only

Answer: C

Topic: Concept 6.2

Skill: Knowledge

9) All of the following are part of a prokaryotic cell *except*

- A) DNA.
- B) a cell wall.
- C) a plasma membrane.
- D) ribosomes.
- E) an endoplasmic reticulum.

Answer: E

Topic: Concept 6.2

Skill: Knowledge

- 10) The volume enclosed by the plasma membrane of plant cells is often much larger than the corresponding volume in animal cells. The most reasonable explanation for this observation is that
- A) plant cells are capable of having a much higher surface-to-volume ratio than animal cells.
 - B) plant cells have a much more highly convoluted (folded) plasma membrane than animal cells.
 - C) plant cells contain a large vacuole that reduces the volume of the cytoplasm.
 - D) animal cells are more spherical, while plant cells are elongated.
 - E) the basic functions of plant cells are very different from those of animal cells.

Answer: C

Topic: Concept 6.2

Skill: Comprehension

- 11) Which of the following comparisons between prokaryotic and eukaryotic cells is *incorrect*?
- A) The lack of organelles in prokaryotes means that they are structurally less complex than eukaryotes.
 - B) The lack of internal membranes means that prokaryotes cannot compartmentalize function to the same extent as eukaryotes.
 - C) All membrane function in prokaryotes is accomplished in the plasma membrane, while in eukaryotes, these functions are more distributed among the organelles.
 - D) The specialization of function in organelles suggests that eukaryotes will contain a wider variety of phospholipids than prokaryotes.
 - E) The lack of organelles in prokaryotes means that the basic cellular functions are different in prokaryotes than in eukaryotes.

Answer: E

Topic: Concept 6.2

Skill: Application

For the following questions, use the lettered answers to match the structure to its proper cell type. Choose the most inclusive category. Each answer may be used once, more than once, or not at all.

- A. a feature of all cells
- B. found in prokaryotic cells only
- C. found in eukaryotic cells only
- D. found in plant cells only
- E. found in animal cells only

12) plasma membrane

Answer: A

Topic: Concept 6.2

Skill: Knowledge

13) tonoplast

Answer: D

Topic: Concept 6.4

Skill: Knowledge

14) nucleoid

Answer: B

Topic: Concept 6.3

Skill: Knowledge

15) Which of the following does *not* contain functional ribosomes?

- A) a prokaryotic cell
- B) a plant mitochondrion
- C) a chloroplast
- D) an animal mitochondrion
- E) a nucleolus

Answer: E

Topic: Concept 6.3

Skill: Knowledge

16) Large numbers of ribosomes are present in cells that specialize in producing which of the following molecules?

- A) lipids
- B) starches
- C) proteins
- D) steroids
- E) glucose

Answer: C

Topic: Concept 6.3

Skill: Knowledge

17) Which of the following compounds require the presence of the nuclear pores to move between the cytoplasm and the interior of the nucleus?

- A) ribosomal RNA
- B) messenger RNA
- C) proteins synthesized in the cytoplasm that are part of ribosomes
- D) A and B only
- E) A, B, and C

Answer: E

Topic: Concept 6.3

Skill: Comprehension

18) Which of the following organelles is not a common destination for small vesicles that bud off the Golgi apparatus?

- A) plasma membrane
- B) lysosomes
- C) vacuole
- D) endoplasmic reticulum
- E) all of the above

Answer: D

Topic: Concept 6.3

Skill: Comprehension

19) Which of the following *incorrectly* matches the type of cell, type of protein, and site of the protein's synthesis?

- A) prokaryote, cytoplasmic protein, free cytoplasmic ribosome
- B) eukaryote, plasma membrane protein, rough ER
- C) prokaryote, plasma membrane protein, ribosome bound to plasma membrane
- D) eukaryote, cytoplasmic protein, free cytoplasmic ribosome
- E) prokaryote, secreted protein, free cytoplasmic ribosome

Answer: E

Topic: Concept 6.3

Skill: Comprehension

20) Under which of the following conditions would you expect to find a cell with a predominance of free ribosomes?

- A) a cell that is secreting proteins
- B) a cell that is producing cytoplasmic enzymes
- C) a cell that is constructing its cell wall or extracellular matrix
- D) a cell that is digesting food particles
- E) a cell that is enlarging its vacuole

Answer: B

Topic: Concepts 6.3, 6.4

Skill: Application

21) Which type of organelle is primarily involved in the synthesis of oils, phospholipids, and steroids?

- A) ribosome
- B) lysosome
- C) smooth endoplasmic reticulum
- D) mitochondrion
- E) contractile vacuole

Answer: C

Topic: Concept 6.4

Skill: Knowledge

22) Which structure is the site of the synthesis of proteins that may be exported from the cell?

- A) rough ER
- B) lysosomes
- C) plasmodesmata
- D) Golgi vesicles
- E) tight junctions

Answer: A

Topic: Concept 6.4

Skill: Knowledge

23) Which of the following structures is most directly associated with the secretion of compounds that will become part of the plant cell wall?

- A) smooth ER
- B) rough ER
- C) plasmodesmata
- D) Golgi-derived vesicles
- E) Golgi apparatus

Answer: D

Topic: Concept 6.4

Skill: Comprehension

24) The Golgi apparatus has a polarity or sidedness to its structure and function. Which of the following statements *correctly* describes this polarity?

- A) Transport vesicles fuse with one side of the Golgi and leave from the opposite side.
- B) Proteins in the membrane of the Golgi may be sorted and modified as they move from one side of the Golgi to the other.
- C) Lipids in the membrane of the Golgi may be sorted and modified as they move from one side of the Golgi to the other.
- D) Soluble proteins in the cisternae (interior) of the Golgi may be sorted and modified as they move from one side of the Golgi to the other.
- E) All of the above correctly describe polar characteristics of the Golgi function.

Answer: E

Topic: Concept 6.4

Skill: Comprehension

25) Of the following, which is probably the most common route for membrane flow in the endomembrane system?

- A) Golgi → lysosome → ER → plasma membrane
- B) tonoplast → plasma membrane → nuclear envelope → smooth ER
- C) nuclear envelope → lysosome → Golgi → plasma membrane
- D) rough ER → vesicles → Golgi → plasma membrane
- E) ER → chloroplasts → mitochondrion → cell membrane

Answer: D

Topic: Concept 6.4

Skill: Knowledge

26) Which of the following cell components is *not directly involved in synthesis or secretion*?

- A) ribosome
- B) rough endoplasmic reticulum
- C) Golgi body
- D) smooth endoplasmic reticulum
- E) lysosome

Answer: E

Topic: Concept 6.4

Skill: Comprehension

27) The fact that the outer membrane of the nuclear envelope has bound ribosomes allows one to *most reliably* conclude that

- A) at least some of the proteins that function in the nuclear envelope are made by the ribosomes on the nuclear envelope.
- B) the nuclear envelope is not part of the endomembrane system.
- C) the nuclear envelope is physically continuous with the endoplasmic reticulum.
- D) small vesicles from the Golgi fuse with the nuclear envelope.
- E) nuclear pore complexes contain proteins.

Answer: A

Topic: Concept 6.4

Skill: Comprehension

28) The difference in lipid and protein composition between the membranes of the endomembrane system is largely determined by

- A) the physical separation of most membranes from each other.
- B) the transportation of membrane among the endomembrane system by small membrane vesicles.
- C) the function of the Golgi apparatus in sorting membrane components.
- D) the modification of the membrane components once they reach their final destination.
- E) the synthesis of lipids and proteins in each of the organelles of the endomembrane system.

Answer: C

Topic: Concept 6.4

Skill: Comprehension

29) In animal cells, hydrolytic enzymes are packaged to prevent general destruction of cellular components. Which of the following organelles functions in this compartmentalization?

- A) chloroplast
- B) lysosome
- C) central vacuole
- D) peroxisome
- E) glyoxysome

Answer: B

Topic: Concept 6.4

Skill: Knowledge

30) Which of the following statements *correctly* describes some aspect of protein excretion in prokaryotic cells?

A) Prokaryotes are unlikely to be able to excrete proteins because they lack an endomembrane system.

B) The mechanism of protein excretion in prokaryotes is probably the same as that in eukaryotes.

C) Proteins that are excreted by prokaryotes are synthesized on ribosomes that are bound to the cytoplasmic surface of the plasma membrane.

D) In prokaryotes, the ribosomes that are used for the synthesis of secreted proteins are located outside of the cell.

E) Prokaryotes contain large pores in their plasma membrane that permit the movement of proteins out of the cell.

Answer: C

Topic: Concept 6.4

Skill: Application

Refer to the following five terms to answer the following questions. Choose the most appropriate term for each phrase. Each term may be used once, more than once, or not at all.

A. lysosome

B. vacuole

C. mitochondrion

D. Golgi apparatus

E. peroxisome

31) produces and modifies polysaccharides that will be secreted

Answer: D

Topic: Concept 6.4

Skill: Knowledge

32) contains hydrolytic enzymes

Answer: A

Topic: Concept 6.4

Skill: Knowledge

33) helps to recycle the cell's organic material

Answer: A

Topic: Concept 6.4

Skill: Knowledge

34) one of the main energy transformers of cells

Answer: C

Topic: Concept 6.5

Skill: Knowledge

35) contains its own DNA and ribosomes

Answer: C

Topic: Concept 6.5

Skill: Knowledge

36) a compartment that often takes up much of the volume of a plant cell

Answer: B

Topic: Concept 6.4

Skill: Knowledge

37) contains enzymes that transfer hydrogen from various substrates to oxygen, producing 

Answer: E

Topic: Concept 6.5

Skill: Knowledge

38) a versatile plant compartment that may hold reserves of organic compounds or inorganic ions

Answer: B

Topic: Concept 6.4

Skill: Knowledge

39) Of the following, what do both mitochondria and chloroplasts have in common?

A) ATP is produced.

B) DNA is present.

C) Ribosomes are present.

D) B and C only

E) A, B, and C are correct.

Answer: E

Topic: Concept 6.5

Skill: Knowledge

40) Grana, thylakoids, and stroma are all components found in

A) vacuoles.

B) chloroplasts.

C) mitochondria.

D) lysosomes.

E) nuclei.

Answer: B

Topic: Concept 6.5

Skill: Knowledge

41) Organelles other than the nucleus that contain DNA include

A) ribosomes.

B) mitochondria.

C) chloroplasts.

D) B and C only

E) A, B, and C

Answer: D

Topic: Concept 6.5

Skill: Knowledge

42) Which of the following statements *incorrectly* describes common structural features of an animal secretory cell and a photosynthetic plant cell?

A) Both cells have Golgi apparatus.

B) Both cells have mitochondria.

C) Both cells have chloroplasts.

D) Both cells have a plasma membrane.

E) Both cells have a nucleus.

Answer: C

Topic: Concept 6.5

Skill: Comprehension

43) The chemical reactions involved in respiration are virtually identical between prokaryotic and eukaryotic cells. In eukaryotic cells, ATP is synthesized primarily on the inner membrane of the mitochondria. Where are the corresponding reactions likely to occur in prokaryotic respiration?

- A) in the cytoplasm
- B) on the inner mitochondrial membrane
- C) on the endoplasmic reticulum
- D) on the plasma membrane
- E) on the nuclear envelope

Answer: D

Topic: Concept 6.5

Skill: Comprehension

44) A biologist ground up some plant leaf cells and then centrifuged the mixture to fractionate the organelles. Organelles in one of the heavier fractions could produce ATP in the light, while organelles in the lighter fraction could produce ATP in the dark. The heavier and lighter fractions are most likely to contain, respectively,

- A) mitochondria and chloroplasts.
- B) chloroplasts and peroxisomes.
- C) peroxisomes and chloroplasts.
- D) chloroplasts and mitochondria.
- E) mitochondria and peroxisomes.

Answer: D

Topic: Concept 6.5

Skill: Comprehension

45) Which of the following is a place where both DNA and ribosomes are *unlikely* to be found in *any* type of cell?

- A) stroma of chloroplasts
- B) mitochondrial matrix
- C) nucleus
- D) cytoplasm
- E) Golgi apparatus

Answer: E

Topic: Concept 6.5

Skill: Comprehension

46) All of the following are correct matches of the location of a protein and the location of its synthesis *except*

- A) plasma membrane protein-rough ER.
- B) mitochondrial membrane protein-free cytoplasmic ribosomes.
- C) cytoplasmic proteins-free cytoplasmic ribosomes.
- D) chloroplast stromal protein-chloroplast ribosomes.
- E) mitochondrial matrix protein-rough ER.

Answer: E

Topic: Concept 6.5

Skill: Application

47) Which of the following are capable of converting light energy to chemical energy?

- A) chloroplasts
- B) mitochondria
- C) leucoplasts
- D) peroxisomes
- E) Golgi bodies

Answer: A

Topic: Concept 6.5

Skill: Knowledge

48) A cell has the following molecules and structures: enzymes, DNA, ribosomes, plasma membrane, and mitochondria. It could be a cell from

- A) a bacterium.
- B) an animal, but not a plant.
- C) a plant, but not an animal.
- D) a plant or an animal.
- E) any kind of organism.

Answer: D

Topic: Concept 6.5

Skill: Comprehension

49) Which of the following is *not* a known function of the cytoskeleton?

- A) to maintain a critical limit on cell size
- B) to provide mechanical support to the cell
- C) to maintain the characteristic shape of the cell
- D) to hold mitochondria and other organelles in place within the cytosol
- E) to assist in cell motility by interacting with specialized motor proteins

Answer: A

Topic: Concept 6.6

Skill: Comprehension

50) Motor proteins provide for molecular motion in cells by interacting with what types of cellular structures?

- A) sites of energy production in cellular respiration
- B) membrane proteins
- C) ribosomes
- D) cytoskeletons
- E) cellulose fibers in the cell wall

Answer: D

Topic: Concept 6.6

Skill: Knowledge

51) Cells can be described as having a cytoskeleton of internal structures that contribute to the shape, organization, and movement of the cell. All of the following are part of the cytoskeleton *except*

- A) the nuclear envelope.
- B) microtubules.
- C) microfilaments.
- D) intermediate filaments.
- E) actin.

Answer: A

Topic: Concept 6.6

Skill: Knowledge

52) Which of the following pairs is mismatched?

- A) nucleolus-ribosomal RNA
- B) nucleus-DNA replication
- C) lysosome-protein synthesis
- D) cell membrane-lipid bilayer
- E) cytoskeleton-microtubules

Answer: C

Topic: Concept 6.6

Skill: Comprehension

53) Of the following, which cell structure would most likely be visible with a light microscope that has been manufactured to the maximum resolving power possible?

- A) mitochondrion
- B) microtubule
- C) ribosome
- D) largest microfilament
- E) nuclear pore

Answer: A

Topic: Concept 6.6

Skill: Comprehension

54) Which of the following contain the 9 + 2 arrangement of microtubules?

- A) cilia
- B) centrioles
- C) flagella
- D) A and C only
- E) A, B, and C

Answer: D

Topic: Concept 6.6

Skill: Knowledge

55) Cells would be unable to form cilia or flagella if they did not have

- A) centrosomes.
- B) ribosomes.
- C) actin.
- D) A and B only
- E) A, B, and C

Answer: D

Topic: Concept 6.7

Skill: Comprehension

56) Which of the following possesses a microtubular structure similar to a basal body?

- A) centriole
- B) lysosome
- C) nucleolus
- D) peroxisome
- E) ribosome

Answer: A

Topic: Concept 6.6

Skill: Knowledge

57) Microfilaments are well known for their role in which of the following?

- A) amoeboid movement
- B) formation of cleavage furrows
- C) contracting of muscle cells
- D) A and B only
- E) A, B, and C

Answer: E

Topic: Concept 6.6

Skill: Comprehension

58) Which of the following statements about the cytoskeleton is *incorrect*?

- A) The dynamic aspect of cytoskeletal function is made possible by the assembly and disassembly of a few simple types of proteins into large aggregates.
- B) Microfilaments are structurally rigid and resist compression, while microtubules resist tension (stretching).
- C) Movement of cilia and flagella is the result of motor proteins causing microtubules to move relative to each other.
- D) Chemicals that block the assembly of the cytoskeleton would prevent many different processes in cells.
- E) Transport vesicles among the membranes of the endomembrane system depend on the function of the cytoskeleton.

Answer: B

Topic: Concept 6.6

Skill: Application

59) All of the following structures and proteins are directly associated with movement in cells or by cells *except*

- A) cilia.
- B) dynein.
- C) actin.
- D) flagella.
- E) centrosomes.

Answer: E

Topic: Concept 6.6

Skill: Knowledge

60) All of the following serve an important role in determining or maintaining the structure of plant cells. Which of the following are distinct from the others in terms of composition?

- A) microtubules
- B) microfilaments
- C) plant cell walls
- D) intermediate filaments
- E) nuclear lamina

Answer: C

Topic: Concept 6.7

Skill: Comprehension

61) Which of the following relationships between cell structures and their respective functions is *not* correct?

- A) cell wall: support, protection
- B) chloroplasts: chief sites of cellular respiration
- C) chromosomes: genetic control information
- D) ribosomes: site of protein synthesis
- E) mitochondria: formation of ATP

Answer: B

Topic: Concept 6.7

Skill: Comprehension

62) The cell walls of bacteria, fungi, and plant cells and the extracellular matrix of animal cells are all external to the plasma membrane. Which of the following is *not* a characteristic of all of these extracellular structures?

- A) They must be highly permeable to water and small molecules in order to allow cells to exchange matter and energy with their environment.
- B) They must permit information transfer between the cell's external environment and the cytoplasm.
- C) They must provide a rigid structure that maintains an appropriate ratio of cell surface area to volume.
- D) They are constructed of materials that are largely synthesized in the cytoplasm and then transported out of the cell.
- E) They are composed of a mixture of proteins and carbohydrates.

Answer: C

Topic: Concept 6.7

Skill: Application

63) When a potassium ion (K^+) moves from the soil into the vacuole of a cell on the surface of a root, it must pass through several cellular structures. Which of the following correctly describes the order in which these structures will be encountered by the ion?

- A) plasma membrane → primary cell wall → cytoplasm → tonoplast
- B) secondary cell wall → plasma membrane → primary cell wall → cytoplasm → tonoplast
- C) primary cell wall → plasma membrane → cytoplasm → tonoplast
- D) primary cell wall → plasma membrane → tonoplast → cytoplasm → vacuole
- E) tonoplast → primary cell wall → plasma membrane → cytoplasm

Answer: C

Topic: Concept 6.7

Skill: Comprehension

64) A cell lacking the ability to make and secrete glycoproteins would most likely be deficient in its

- A) nuclear DNA.
- B) extracellular matrix.
- C) Golgi apparatus.
- D) B and C only
- E) A, B, and C

Answer: D

Topic: Concept 6.7

Skill: Comprehension

65) The extracellular matrix is thought to participate in the regulation of animal cell behavior by communicating information from the outside to the inside of the cell via

- A) gap junctions.
- B) the nucleus.
- C) DNA and RNA.
- D) integrins.
- E) plasmodesmata.

Answer: D

Topic: Concept 6.7

Skill: Knowledge

66) Plasmodesmata in plant cells are *most* similar in function to which of the following structures in animal cells?

- A) peroxisomes
- B) desmosomes
- C) gap junctions
- D) extracellular matrix
- E) tight junctions

Answer: C

Topic: Concept 6.7

Skill: Comprehension

67) Ions can travel directly from the cytoplasm of one animal cell to the cytoplasm of an adjacent cell through

- A) plasmodesmata.
- B) intermediate filaments.
- C) tight junctions.
- D) desmosomes.
- E) gap junctions.

Answer: E

Topic: Concept 6.7

Skill: Knowledge

Media Activity Questions

68) _____ are surface appendages that allow a bacterium to stick to a surface.

- A) Cell walls
- B) Flagella
- C) Ribosomes
- D) Mitochondria
- E) Pili

Answer: E

Topic: Web/CD Activity: Prokaryotic Cell Structure and Function

69) In eukaryotic cells, the first step in protein synthesis is the

- A) translation of an RNA nucleotide sequence into a sequence of amino acids.
- B) linking of nucleotides to form a polypeptide.
- C) translation of a DNA nucleotide sequence into a sequence of amino acids.
- D) transferring of information from DNA to messenger RNA
- E) removal of introns from RNA and the stitching together of exons

Answer: D

Topic: Web/CD Activity: Role of the Nucleus and the Ribosomes

70) _____ is composed of DNA and protein.

- A) A mitochondrion
- B) A flagellum
- C) A centriole
- D) Chromatin
- E) A ribosome

Answer: D

Topic: Web/CD Activity: Animal Cell Structure and Function

71) Where is calcium stored?

- A) mitochondria
- B) smooth endoplasmic reticulum
- C) centrioles
- D) rough endoplasmic reticulum
- E) microtubules

Answer: B

Topic: Web/CD Activity: Animal Cell Structure and Function

72) Which of these structures is unique to plant cells?

- A) mitochondrion
- B) peroxisome
- C) flagellum
- D) central vacuole
- E) nucleoid region

Answer: D

Topic: Web/CD Activity: Plant Cell Structure and Function

Self-Quiz Questions

73) The symptoms of a certain inherited disorder in humans include breathing problems and, in males, sterility. Which of the following is a reasonable hypothesis for the molecular basis of this disorder?

- A) a defective enzyme in the mitochondria
- B) defective actin molecules in cellular microfilaments
- C) defective dynein molecules in cilia and flagella
- D) abnormal hydrolytic enzymes in the lysosomes
- E) defective ribosome assembly in the nucleolus

Answer: C

74) Choose the statement that correctly characterizes bound ribosomes.

- A) Bound ribosomes are enclosed in their own membrane.
- B) Bound and free ribosomes are structurally different.
- C) Bound ribosomes generally synthesize membrane proteins and secretory proteins.
- D) The most common location for bound ribosomes is the cytoplasmic surface of the plasma membrane.
- E) All of the above.

Answer: C

75) Which of the following is not considered part of the endomembrane system?

- A) nuclear envelope
- B) chloroplast
- C) Golgi apparatus
- D) plasma membrane
- E) ER

Answer: B

76) Cells of the pancreas will incorporate radioactively labeled amino acids into proteins. This "tagging" of newly synthesized proteins enables a researcher to track the location of these proteins in a cell. In this case, we are tracking an enzyme that is eventually secreted by pancreatic cells. Which of the following is the most likely pathway for movement of this protein in the cell?

- A) ER → Golgi → nucleus
- B) Golgi → ER → lysosome
- C) nucleus → ER → Golgi
- D) ER → Golgi → vesicles that fuse with plasma membrane
- E) ER → lysosomes → vesicles that fuse with plasma membrane

Answer: D

77) Which of the following structures is common to plant *and* animal cells?

- A) chloroplast
- B) wall made of cellulose
- C) tonoplast
- D) mitochondrion
- E) centriole

Answer: D

78) Which of the following is present in a prokaryotic cell?

- A) mitochondrion
- B) ribosome
- C) nuclear envelope
- D) chloroplast
- E) ER

Answer: B

79) Which type of cell would probably provide the best opportunity to study lysosomes?

- A) muscle cell
- B) nerve cell
- C) phagocytic white blood cell
- D) leaf cell of a plant
- E) bacterial cell

Answer: C

80) Which of the following statements is a correct distinction between prokaryotic and eukaryotic cells attributable to the absence of a prokaryotic cytoskeleton?

- A) Organelles are found only in eukaryotic cells.
- B) Cytoplasmic streaming is not observed in prokaryotes.
- C) Only eukaryotic cells are capable of movement.
- D) Prokaryotic cells have cell walls.
- E) Only the eukaryotic cell concentrates its genetic material in a region separate from the rest of the cell.

Answer: B

81) Which of the following structure-function pairs is *mismatched*?

- A) nucleolus-ribosome production
- B) lysosome-intracellular digestion
- C) ribosome-protein synthesis
- D) Golgi-protein trafficking
- E) microtubule-muscle contraction

Answer: E

82) Cyanide binds with at least one of the molecules involved in the production of ATP. Following exposure of a cell to cyanide, most of the cyanide could be expected to be found within the

- A) mitochondria.
- B) ribosomes.
- C) peroxisomes.
- D) lysosomes.
- E) endoplasmic reticulum.

Answer: A