

### Practice Test for BIO 311C -- Chapters 6-11

Answer the 6 Big Questions on Handout 18 first. Then, test your knowledge on these practice questions. Grade them, then use this practice test to add to your answers to the 6 Big Questions. The questions on this practice test are mostly about details, not major concepts!

#### **MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

1) Which of the following would likely move through the lipid bilayer of a plasma membrane most rapidly?

- A) K<sup>+</sup>
- B) CO<sub>2</sub>
- C) an amino acid
- D) glucose

2) The main difference(s) between facilitated diffusion and active transport is (are)

- A) facilitated diffusion uses channel or carrier proteins and active transport does not.
- B) facilitated diffusion does not rely on cellular energy and active transport does.
- C) facilitated diffusion moves substances down their concentration gradient and active transport moves them against their gradient.
- D) A and B only
- E) A, B, and C

3) What limits the resolving power of a light microscope?

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

4) Which of the following is a reasonable explanation for why unsaturated fatty acids help keep any membrane more fluid at lower temperatures?

- A) The double bonds result in a shorter fatty acid tail.
- B) The double bonds block interaction among the hydrophilic head groups of the lipids.
- C) Unsaturated fatty acids have a higher cholesterol content.
- D) Unsaturated fatty acids permit more water in the interior of the membrane.
- E) The double bonds form a kink in the fatty acid tail, forcing adjacent lipids to be further apart.

5) Which of the following statements *best describes the relationship between photosynthesis and respiration?*

- A) ATP molecules are produced in photosynthesis and used up in respiration.
- B) Respiration is the reversal of the biochemical pathways of photosynthesis.
- C) Photosynthesis stores energy in complex organic

molecules, while respiration releases it.

D) Respiration is anabolic and photosynthesis is catabolic.

E) Photosynthesis occurs only in plants and respiration occurs only in animals.

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

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

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

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

8) 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) All membrane function in prokaryotes is accomplished in the plasma membrane, while in eukaryotes, these functions are more distributed among the organelles.
- C) The lack of internal membranes means that prokaryotes cannot compartmentalize function to the same extent as eukaryotes.
- D) The lack of organelles in prokaryotes means that the basic cellular functions are different in prokaryotes than in eukaryotes.
- E) The specialization of function in organelles suggests that eukaryotes will contain a wider variety of phospholipids than prokaryotes.

9) What is the primary function of the light reactions of photosynthesis?

- A) to convert light energy to the chemical energy of PGAL
- B) to produce energy-rich glucose from carbon dioxide and water
- C) to produce NADPH used in respiration
- D) to use ATP to make glucose
- E) to produce ATP and NADPH

10) Which is true of transcription factors?

- A) Some transcribe ATP into cAMP.
- B) They are needed to regulate the synthesis of protein in the cytoplasm.
- C) They regulate the synthesis of DNA in response to a signal.
- D) They control which genes are turned on to form mRNA.

11) In addition to ATP, what are the end products of glycolysis?

- A) C and pyruvate
- B) NADH and pyruvate
- C) C and NADH
- D) C and O

12) Carrier molecules in the membrane and metabolic energy are required for

- A) active transport.
- B) osmosis.
- C) facilitated diffusion.
- D) B and C only
- E) A, B, and C

13) Which of the following is (are) true of ligand-gated ion channels?

- A) They open or close in response to a chemical signal.
- B) They are important in the nervous system.
- C) They lead to changes in sodium and calcium concentrations in cells.
- D) Only A and B are true.
- E) A, B, and C are true.

15) Whenever energy is transformed, there is always an increase in the

- A) free energy of the universe.
- B) enthalpy of the universe.
- C) entropy of the universe.
- D) free energy of the system.
- E) entropy of the system.

17) All of the following are functions of the citric acid cycle *except*

- A) production of NADH.
- B) production of FAD.
- C) release of carbon dioxide.
- D) adding electrons and protons to oxygen, forming water.
- E) production of ATP.

18) The primary role of oxygen in cellular respiration is to

- A) act as an acceptor for electrons and hydrogen, forming water.
- B) combine with carbon, forming C.
- C) yield energy in the form of ATP as it is passed down the respiratory chain.
- D) catalyze the reactions of glycolysis.
- E) combine with lactate, forming pyruvate.

19) Which of the following statements is a logical consequence of the second law of thermodynamics?

- A) Energy can be transferred or transformed, but it cannot be created or destroyed.
- B) If the entropy of a system increases, there must be a corresponding decrease in the entropy of the universe.
- C) If there is an increase in the energy of a system, there must be a corresponding decrease in the energy of the rest of the universe.
- D) Every chemical reaction must increase the total entropy

of the universe.

E) Every energy transfer requires activation energy from the environment.

20) Where does the Calvin cycle take place?

- A) cytoplasm surrounding the chloroplast
- B) stroma of the chloroplast
- C) outer membrane of the chloroplast
- D) thylakoid membrane
- E) chlorophyll molecule

21) How can one increase the rate of a chemical reaction?

- A) Decrease the concentration of the reactants.
- B) Increase the activation energy needed.
- C) Add a catalyst.
- D) Cool the reactants.
- E) Increase the entropy of the reactants.

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

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

23) A chemical reaction that has a positive  $\Delta G$  is *correctly described as*

- A) endothermic.
- B) exothermic.
- C) enthalpic.
- D) spontaneous.
- E) endergonic.

25) Carbon dioxide (C) is released during which of the following stages of cellular respiration?

- A) oxidative phosphorylation and fermentation
- B) fermentation and glycolysis
- C) oxidation of pyruvate to acetyl CoA and the citric acid cycle
- D) the citric acid cycle and oxidative phosphorylation
- E) glycolysis and the oxidation of pyruvate to acetyl CoA

26) The general name for an enzyme that transfers phosphate groups from ATP to a protein is

- A) protein kinase.
- B) protease.
- C) phosphatase.
- D) ATPase.
- E) phosphorylase.

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

- A) thylakoid membranes
- B) chemiosmosis
- C) ATP synthase
- D) B and C only
- E) A, B, and C

29) Starting with one molecule of glucose, the "net" products of glycolysis are

- A) 2 NA, 2 , 2 pyruvate, 2 ATP, and 2 O.
- B) 2 FAD, 2 pyruvate, 4 ATP, and 2 O.
- C) 2 NADH, 2 , 2 pyruvate, 2 ATP, and 2 O.
- D) 6 C, 6 O, 36 ATP, and 2 citrate.
- E) 6 C, 6 O, 2 ATP, and 2 pyruvate.

30) What are the products of the light reactions that are subsequently used by the Calvin cycle?

- A) oxygen and carbon dioxide
- B) water and carbon
- C) ATP and NADPH
- D) electrons and photons
- E) carbon dioxide and RuBP

31) The direct energy source that drives ATP synthesis during respiratory oxidative phosphorylation is

- A) the thermodynamically favorable transfer of phosphate from glycolysis and the citric acid cycle intermediate molecules of ADP.
- B) the thermodynamically favorable flow of electrons from NADH to the mitochondrial electron transport carriers.
- C) oxidation of glucose to C and water.
- D) the difference in concentrations on opposite sides of the inner mitochondrial membrane.
- E) the final transfer of electrons to oxygen.

32) Which of the following statements about glycolysis is *false*?

- A) Glycolysis makes ATP exclusively through substrate-level phosphorylation.
- B) The enzymes of glycolysis are located in the cytosol of the cell.
- C) The end products of glycolysis are CO<sub>2</sub> and H<sub>2</sub>O.
- D) Glycolysis has steps involving oxidation-reduction reactions.
- E) Glycolysis can operate in the complete absence of O<sub>2</sub>.

33) Cellular respiration harvests the most chemical energy from which of the following?

- A) oxidative phosphorylation
- B) generating carbon dioxide and oxygen in the electron transport chain
- C) substrate-level phosphorylation
- D) transferring electrons from organic molecules to pyruvate
- E) converting oxygen to ATP

34) In glycolysis, for each molecule of glucose oxidized to pyruvate

- A) 6 molecules of ATP are used and 6 molecules of ATP are produced.
- B) 2 molecules of ATP are used and 2 molecules of ATP are produced.
- C) 4 molecules of ATP are used and 2 molecules of ATP are produced.
- D) 2 molecules of ATP are used and 6 molecules of ATP

are produced.

E) 2 molecules of ATP are used and 4 molecules of ATP are produced.

35) An enzyme catalyzes a reaction by

- A) lowering the energy of activation of a reaction.
- B) supplying the energy to speed up a reaction.
- C) lowering the  $\Delta G$  of a reaction.
- D) increasing the amount of free energy of a reaction.
- E) changing the equilibrium of a spontaneous reaction.

36) Where is ATP synthase located in the mitochondrion?

- A) inner membrane
- B) electron transport chain
- C) cytosol
- D) outer membrane
- E) mitochondrial matrix

37) Glycolysis is thought to be one of the most ancient of metabolic processes. Which statement supports this idea?

- A) The enzymes of glycolysis are found in the cytosol rather than in a membrane-enclosed organelle.
- B) Glycolysis neither uses nor needs .
- C) Glycolysis is the most widespread metabolic pathway.
- D) Glycolysis is found in all eukaryotic cells.
- E) Ancient prokaryotic cells, the most primitive of cells, made extensive use of glycolysis long before oxygen was present in Earth's atmosphere.

38) Sucrose is a disaccharide, composed of the monosaccharides glucose and fructose. The hydrolysis of sucrose by the enzyme sucrase results in

- A) production of water from the sugar as bonds are broken between the glucose monomers.
- B) utilization of water as a covalent bond is formed between glucose and fructose to form sucrose.
- C) bringing glucose and fructose together to form sucrose.
- D) breaking the bond between glucose and fructose and forming new bonds from the atoms of water.
- E) the release of water from sucrose as the bond between glucose and fructose is broken.

40) What is one of the ways that the membranes of winter wheat are able to remain fluid when it is extremely cold?

- A) by increasing the percentage of unsaturated phospholipids in the membrane
- B) by decreasing the number of hydrophobic proteins in the membrane
- C) by increasing the percentage of cholesterol molecules in the membrane
- D) A and B only
- E) A, B, and C

41) The sodium-potassium pump is called an electrogenic pump because it  
A) ionizes sodium and potassium atoms.  
B) pumps hydrogen ions out of the cell.  
C) pumps equal quantities of Na<sup>+</sup> and K<sup>+</sup> across the membrane.  
D) is used to drive the transport of other molecules against a concentration gradient.  
E) contributes to the membrane potential.

42) Organelles other than the nucleus that contain DNA include  
A) ribosomes.  
B) chloroplasts.  
C) mitochondria.  
D) B and C only  
E) A, B, and C

43) The movement of a substance across a biological membrane against its concentration gradient with the help of energy input is  
A) diffusion.  
B) active transport.  
C) exocytosis.  
D) osmosis.  
E) facilitated diffusion.

44) During aerobic cellular respiration, a proton gradient in mitochondria is generated by \_\_\_\_\_ and used primarily for \_\_\_\_\_.  
A) the electron transport chain; substrate-level phosphorylation  
B) glycolysis; production of O<sub>2</sub>  
C) the electron transport chain; ATP synthesis  
D) fermentation; NAD<sup>+</sup> reduction  
E) diffusion of protons; ATP synthesis

45) Increasing the substrate concentration in an enzymatic reaction could overcome which of the following? A) denaturation of the enzyme  
B) saturation of the enzyme activity  
C) allosteric inhibition  
D) competitive inhibition  
E) insufficient cofactors

46) What are the substrates (normal reactants) for the enzyme RuBP carboxylase?  
A) CO<sub>2</sub> and glucose  
B) triose-P, glucose, and CO<sub>2</sub>  
C) CO<sub>2</sub> and ATP  
D) CO<sub>2</sub> and O<sub>2</sub>  
E) ATP and NADPH

47) According to the induced fit hypothesis of enzyme catalysis, which of the following is *correct*?  
A) Some enzymes change their structure when activators bind to the enzyme.  
B) The binding of the substrate depends on the shape of the active site.  
C) A competitive inhibitor can outcompete the substrate

for the active site.  
D) The active site creates a microenvironment ideal for the reaction.  
E) The binding of the substrate changes the shape of the enzyme's active site.

49) How does a non-competitive inhibitor decrease the rate of an enzyme reaction?  
A) by changing the structure of the enzyme  
B) by changing the free energy change of the reaction  
C) by decreasing the activation energy of the reaction  
D) by acting as a coenzyme for the reaction  
E) by binding at the active site of the enzyme

52) Which of the following statements is (are) correct about an oxidation-reduction (or redox) reaction? A) The molecule that is oxidized loses electrons.  
B) The molecule that is reduced gains electrons.  
C) The molecule that is reduced loses electrons.  
D) The molecule that is oxidized gains electrons.  
E) Both A and B are correct.

53) Which of the following is (are) required in the Calvin cycle?  
A) CO<sub>2</sub>  
B) RuBP  
C) ATP  
D) A and B only  
E) A, B, and C

54) What is the primary function of the Calvin cycle?  
A) transport RuBP out of the chloroplast  
B) split water and release oxygen  
C) use ATP to release carbon dioxide  
D) use NADPH to release carbon dioxide  
E) synthesize simple sugars from carbon dioxide

55) A molecule that is phosphorylated  
A) has an increased chemical reactivity; it is primed to do cellular work.  
B) has a decreased chemical reactivity; it is less likely to provide energy for cellular work.  
C) has been oxidized as a result of a redox reaction involving the gain of an inorganic phosphate.  
D) has less energy than before its phosphorylation and therefore less energy for cellular work.  
E) has been reduced as a result of a redox reaction involving the loss of an inorganic phosphate.

56) Suppose the interior of the thylakoids of isolated chloroplasts were made acidic and then transferred in the dark to a pH-8 solution. What would be likely to happen?  
A) The Calvin cycle will be activated.  
B) The isolated chloroplasts will make ATP.  
C) Cyclic photophosphorylation will occur.  
D) Only A and B will occur.  
E) A, B, and C will occur.

57) Which of the following produces the most ATP when glucose ( $C_6H_{12}O_6$ ) is completely oxidized to carbon dioxide ( $CO_2$ ) and water?

- A) citric acid cycle
- B) fermentation
- C) glycolysis
- D) oxidative phosphorylation (chemiosmosis)
- E) oxidation of pyruvate to acetyl CoA

59) The surface of an integral membrane protein would be best described as

- A) completely covered with phospholipids.
- B) amphipathic.
- C) hydrophilic.
- D) exposed on only one surface of the membrane.
- E) hydrophobic.

62) What does cyclic electron flow in the chloroplast produce?

- A) glucose
- B) ATP
- C) NADPH
- D) A and B
- E) A, B, and C

64) Phosphofructokinase is an allosteric enzyme that catalyzes the conversion of fructose-6-phosphate to fructose-1,6-bisphosphate, an early step of glycolysis. In the presence of oxygen, an increase in the amount ATP in a cell would be expected to

- A) inhibit the enzyme and thus increase the rates of glycolysis and the citric acid cycle.
- B) activate the enzyme and thus slow the rates of glycolysis and the citric acid cycle.
- C) inhibit the enzyme and thus increase the rate of glycolysis and the concentration of citrate.
- D) inhibit the enzyme and thus slow the rates of glycolysis and the citric acid cycle.
- E) activate the enzyme and increase the rates of glycolysis and the citric acid cycle.

65) Where are the proteins of the electron transport chain located?

- A) mitochondrial matrix
- B) cytosol
- C) mitochondrial outer membrane
- D) mitochondrial inner membrane
- E) mitochondrial intermembrane space

66) The ATP made during glycolysis is generated by

- A) oxidation of NADH to NA.
- B) substrate-level phosphorylation.
- C) electron transport.
- D) photophosphorylation.
- E) chemiosmosis.

67) Testosterone functions inside a cell by

- A) coordinating a phosphorylation cascade that increases glycogen metabolism.

B) acting as a signal receptor that activates ion-channel proteins.

C) binding with a receptor protein that enters the nucleus and activates specific genes.

D) becoming a second messenger that inhibits adenylyl cyclase.

E) acting as a steroid signal receptor that activates ion-channel proteins.

70) The selective permeability of biological membranes is dependent on which of the following?

A) the lipid bilayer being permeable to primarily small, nonpolar molecules

B) the type of transport proteins that are present in the membrane

C) the types of carbohydrates on the surface of the membrane

D) A and B only

E) A, B, and C

71) Where does glycolysis take place?

A) mitochondrial matrix

B) mitochondrial intermembrane space

C) mitochondrial outer membrane

D) cytosol

E) mitochondrial inner membrane

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

A) cellulose fibers in the cell wall

B) sites of energy production in cellular respiration

C) cytoskeletons

D) membrane proteins

E) ribosomes

73) Assume a thylakoid is somehow punctured so that the interior of the thylakoid is no longer separated from the stroma. This damage will have the most direct effect on which of the following processes?

A) the flow of electrons from photosystem II to photosystem I

B) the reduction of  $NADP^+$

C) the splitting of water

D) the synthesis of ATP

E) the absorption of light energy by chlorophyll

74) Which of the following is *true for all exergonic reactions*?

A) A net input of energy from the surroundings is required for the reactions to proceed.

B) The reaction proceeds with a net release of free energy.

C) The reactions are nonspontaneous.

D) The products have more total energy than the reactants.

E) Some reactants will be converted to products.

75) Which statement is *false*?

- A) When chlorophyll is reduced, it gains electrons.
- B) Thylakoid membranes contain the photosynthetic pigments.
- C) The light reactions of photosynthesis provide the energy for the Calvin cycle.
- D) The O<sub>2</sub> released during photosynthesis comes from water.
- E) RuBP is produced during cyclic electron flow in the light reactions of photosynthesis.

76) The oxygen consumed during cellular respiration is involved directly in which process or event?

- A) the oxidation of pyruvate to acetyl CoA
- B) the citric acid cycle
- C) accepting electrons at the end of the electron transport chain
- D) the phosphorylation of ADP to form ATP
- E) glycolysis

77) Why is ATP an important molecule in metabolism?

- A) It provides energy coupling between exergonic and endergonic reactions.
- B) Its terminal phosphate group contains a strong covalent bond that when hydrolyzed releases free energy.
- C) Its hydrolysis provides an input of free energy for exergonic reactions.
- D) A and B only
- E) A, B and C

78) The sodium-potassium pump in animal cells requires cytoplasmic ATP to pump ions across the plasma membrane. When the proteins of the pump are first synthesized in the rough ER, what side of the ER membrane will the ATP binding site be on

- A) It will be on the side facing the interior of the ER.
- B) It doesn't matter, because the pump is not active in the ER.
- C) It could be facing in either direction because the orientation of proteins is scrambled in the Golgi apparatus.
- D) It will be on the cytoplasmic side of the ER.
- E) Not enough information is provided to answer this question.

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

- A) a cell that is enlarging its vacuole
- B) a cell that is secreting proteins
- 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 producing cytoplasmic enzymes

80) Phosphofructokinase is an important control enzyme in the regulation of cellular respiration. Which of the following statements concerning phosphofructokinase is *not true*?

- A) It is inhibited by ATP.

B) It specifically catalyzes the conversion of fructose-6-phosphate to fructose-1,6-bisphosphate, an early step of glycolysis.

C) It is activated by citrate, an intermediate of the citric acid cycle.

D) It is an allosteric enzyme.

E) It is activated by AMP (derived from ADP).

81) Which of the following statements is *correct about diffusion*?

A) It is an active process in which molecules move from a region of lower concentration to one of higher concentration.

B) It is very rapid over long distances.

C) It requires integral proteins in the cell membrane.

D) It requires an expenditure of energy by the cell.

E) It is a passive process in which molecules move from a region of higher concentration to a region of lower concentration.

82) A young relative of yours has never had much energy. He goes to a doctor for help and is sent to the hospital for some tests. There they discover his mitochondria can use only fatty acids and amino acids for respiration, and his cells produce more lactate than normal. Of the following, which is the best explanation of his condition?

A) His cells have a defective electron transport chain, so glucose goes to lactate instead of to acetyl CoA.

B) His cells cannot move NADH from glycolysis into the mitochondria.

C) His cells lack the enzyme in glycolysis that forms pyruvate.

D) His cells contain something that inhibits oxygen use in his mitochondria.

E) His mitochondria lack the transport protein that moves pyruvate across the outer mitochondrial membrane.

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

A) mitochondria

B) chloroplasts

C) peroxisomes

D) leucoplasts

E) Golgi bodies

84) All of the following membrane activities require energy from ATP hydrolysis *except*

A) active transport.

B) translocation of potassium into a cell.

C) ions moving out of the cell.

D) proton pumps.

E) facilitated diffusion.

85) Which of the following is (are) *true* regarding the activity of a protein regulated by phosphorylation?

A) It depends mostly on the concentration of inorganic phosphate inside the cell.

B) It is dependent on the site of attachment of the protein to the plasma membrane.

C) It depends on the balance in the cell between active kinase and active phosphatase molecules.

D) Only A and B are true.

E) A, B, and C are true.

86) Glucose diffuses slowly through artificial phospholipid bilayers. The cells lining the small intestine, however, rapidly move large quantities of glucose from the glucose-rich food into their glucose-poor cytoplasm. Using this information, which transport mechanism is most probably functioning in the intestinal cells?

A) simple diffusion

B) facilitated diffusion

C) active transport pumps

D) exocytosis

E) phagocytosis

87) When hydrogen ions are pumped from the mitochondrial matrix across the inner membrane and into the intermembrane space, the result is the

A) lowering of pH in the mitochondrial matrix.

B) reduction of NA.

C) formation of ATP.

D) restoration of the N/ balance across the membrane.

E) creation of a proton gradient.

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

A) ER → chloroplasts → mitochondrion → cell membrane

B) Golgi → lysosome → ER → plasma membrane

C) rough ER → vesicles → Golgi → plasma membrane

D) nuclear envelope → lysosome → Golgi → plasma membrane

E) tonoplast → plasma membrane → nuclear envelope → smooth ER

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

A) prokaryote, plasma membrane protein, ribosome bound to plasma membrane

B) eukaryote, cytoplasmic protein, free cytoplasmic ribosome

C) prokaryote, secreted protein, free cytoplasmic ribosome

D) prokaryote, cytoplasmic protein, free cytoplasmic ribosome

E) eukaryote, plasma membrane protein, rough ER

90) Which of the following statements about membrane structure and function is *false*?

A) Diffusion of gases is faster in air than across membranes.

B) The types of proteins that are exposed on one side of a membrane are nearly identical to those exposed on the other side of the membrane.

C) Diffusion, osmosis, and facilitated diffusion do not require any direct energy input from the cell.

D) Special membrane proteins can cotransport two solutes by coupling diffusion down a concentration gradient to transport against the concentration gradient.

E) Voltage across the membrane depends on an unequal distribution of ions across the plasma membrane.

91) Energy released by the electron transport chain is used to pump ions into which location?

A) mitochondrial intermembrane space

B) cytosol

C) mitochondrial matrix

D) mitochondrial outer membrane

E) mitochondrial inner membrane

92) Which process in eukaryotic cells will proceed normally whether oxygen (O<sub>2</sub>) is present or absent?

A) the citric acid cycle

B) glycolysis

C) chemiosmosis

D) oxidative phosphorylation

E) electron transport

93) Which of the following statements correctly describe(s) catabolic pathways?

A) They lead to the synthesis of catabolic compounds.

B) They release energy as they degrade polymers to monomers.

C) They consume energy to build up polymers from monomers.

D) They do not depend on enzymes.

E) both A and B

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

A) ribosomes.

B) an endoplasmic reticulum.

C) a cell wall.

D) DNA.

E) a plasma membrane.

95) All of the following processes take material into cells *except*

A) exocytosis.

B) endocytosis.

C) carrier-facilitated diffusion.

D) active transport.

E) pinocytosis.

96) Which of the following are prokaryotic cells?

A) fungi

B) plants

C) bacteria

D) animals

E) B and C only

99) ATP generally energizes a cellular process by

A) binding directly to the substrate(s) of the enzyme.

B) acting as a catalyst.

C) breaking a high-energy bond.

D) coupling free energy released by ATP hydrolysis to free energy needed by other reactions.

E) releasing heat upon hydrolysis.

**KEY TO PRACTICE TEST FOR BIO 311C –  
CHAPTERS 6-11**

TAKE THE COMPLETE PRACTICE TEST FIRST  
AND THEN USE THIS KEY TO CHECK YOUR  
ANSWERS.

These questions and answers are from the textbook.  
They test mostly details. We have tried to check the  
questions and answers but it is possible that there  
are errors in this key. If in doubt, use the textbook  
and your lecture notes to check your answers.

Some questions have been removed.

- 1) B
- 2) E
- 3) D
- 4) E
- 5) C
- 6) C
- 7) E
- 8) D
- 9) E
- 10) D
- 11) B
- 12) A
- 13) E
- 14) E
- 15) C
- 16) E
- 17) D
- 18) A
- 19) D
- 20) B
- 21) C
- 22) A
- 23) E
- 24) E
- 25) C
- 26) A
- 27) E
- 28) D
- 29) C
- 30) C
- 31) D
- 32) C
- 33) A
- 34) E
- 35) A
- 36) A
- 37) C
- 38) D
- 39) B
- 40) A
- 41) E
- 42) D
- 43) B
- 44) C
- 45) D

- 46) D
- 47) E
- 48) D
- 49) A
- 50) A
- 51) C
- 52) E
- 53) E
- 54) E
- 55) A
- 56) B
- 57) D
- 58) B
- 59) B
- 60) D
- 61) E
- 62) B
- 63) E
- 64) D
- 65) D
- 66) B
- 67) C
- 68) D
- 69) E
- 70) D
- 71) D
- 72) C
- 73) D
- 74) B
- 75) E
- 76) C
- 77) A
- 78) D
- 79) E
- 80) E
- 81) E
- 82) E
- 83) B
- 84) E
- 85) C
- 86) B
- 87) E
- 88) C
- 89) C
- 90) B
- 91) A
- 92) B
- 93) B
- 94) B
- 95) A
- 96) C
- 97) B
- 98) C
- 99) D