

Chapter 3 – The Remarkable Body

Chapter Learning Objectives

- 3.1 Describe the levels of organization in the body, and identify some basic ways in which nutrition supports them.
- 3.2 Describe the relationships between the body's fluids and the cardiovascular system and their importance to the nourishment and maintenance of body tissues.
- 3.3 Summarize the interactions between the nervous and hormonal systems and nutrition.
- 3.4 State how nutrition and immunity are interrelated, and describe the importance of inflammation to the body's health.
- 3.5 Compare the terms *mechanical digestion* and *chemical digestion*, and point out where these processes occur along the digestive tract with regard to carbohydrate, fat, and protein.
- 3.6 Name some common digestive problems and offer suggestions for dietary alterations that may improve them.
- 3.7 Identify the excretory functions of the lungs, liver, kidneys, and bladder, and state why they are important to maintain normal body functioning.
- 3.8 Identify glycogen and fat as the two forms of nutrients stored in the body, and identify the liver, muscles, and adipose tissue as the body tissues that store them.
- 3.9 Define the term *moderate alcohol consumption*, and discuss the potential health effects, both negative and positive, associated with this level of drinking.

True/False Items

1. Cells are organized into tissues that perform specialized tasks and tissues, in turn, are grouped together to form whole organs.
2. Body fluids supply the tissues continuously with energy, oxygen, and nutrients, including water.
3. Chewing food for an extended time provides additional advantages to digestion.
4. Timing of meals is important because the digestive tract is unable to digest food at certain times.
5. Some nutrients are stored in the body in much smaller quantities than others are.
6. Some vitamins are stored in the body without limit, even if they reach toxic levels.
7. The pancreas releases glucagon to remove glucose from blood and store it in muscles.
8. The hypothalamus in the brain monitors many body conditions, including the availability of nutrients and water.
9. Inflammation is the immune system's normal, healthy response to cell injury.
10. Frequent use of laxatives is an effective way to prevent constipation.
11. Waste materials dissolved in water are collected by the kidneys and become concentrated as urine.

Comprehension-Level Multiple-Choice Items

1. Cells can best be described as:
 - a. the basis of the body's design.
 - b. the vital components of foods.
 - c. self-contained living entities.
 - d. building blocks of the body.
2. Among the cells' most basic needs are _____ and the oxygen with which to burn it.
 - a. water
 - b. essential nutrients
 - c. building blocks
 - d. energy
3. The first principle of diet planning is that the foods we choose must provide energy and the essential nutrients, including:
 - a. water.
 - b. fuel.
 - c. oxygen.
 - d. carbon dioxide.

4. Which of the following determines the nature of the cell's work?
 - a. organs
 - b. mutations
 - c. red blood cells
 - d. genes
5. Cells lining the digestive tract replace themselves every:
 - a. 3 days.
 - b. 2 weeks.
 - c. 4 months.
 - d. 12 months.
6. Which of the following cells normally replace themselves once every few years?
 - a. muscle
 - b. skin
 - c. digestive tract
 - d. red blood
7. Which of the following types of cells do **not** reproduce, and if damaged by injury or disease, are lost forever?
 - a. skin cells
 - b. red blood cells
 - c. muscle cells
 - d. brain cells
8. The body's circulating fluids include:
 - a. intracellular fluid.
 - b. blood.
 - c. lymph.
 - d. a and b
 - e. b and c
9. The blood picks up oxygen and releases carbon dioxide in the:
 - a. heart.
 - b. liver.
 - c. digestive system.
 - d. lungs.
10. Which of the following has the special task of chemically altering absorbed materials to make them better suited for use by other tissues?
 - a. liver
 - b. pancreas
 - c. stomach
 - d. small intestine
11. When the pancreas detects a high concentration of the blood's sugar, glucose, it releases:
 - a. lymph.
 - b. insulin.
 - c. antibodies.
 - d. glucagon.
12. Hormones are secreted and released into the blood by _____.
 - a. antigens
 - b. enzymes
 - c. glands
 - d. antibodies
13. Which of the following alert(s) your conscious mind to the sensation of hunger?
 - a. hypothalamus
 - b. stomach muscles
 - c. taste buds
 - d. a and b
 - e. b and c
14. The nervous system's role in hunger regulation is coordinated by the:
 - a. pancreas.
 - b. brain.
 - c. digestive tract.
 - d. spinal cord.
15. Which of the following does **not** occur as part of the stress response?
 - a. The muscles tense up.
 - b. The liver pours forth glucose from its stores.
 - c. The digestive system speeds up.
 - d. The fat cells release fat.
16. Which of the following are the first to defend the body tissues against invaders?
 - a. phagocytes
 - b. antigens
 - c. T-cells
 - d. B-cells
17. Which of the following poses a formidable obstacle to a successful organ transplant?
 - a. phagocytes
 - b. T-cells
 - c. B-cells
 - d. antibodies

18. The inflammation that tissues undergo when they become injured or irritated:
 - a. is an abnormal, unhealthy response to cell injury.
 - b. results in decreased white cells.
 - c. may involve loss of function of the affected body part.
 - d. is difficult to detect because it has no obvious symptoms.
19. Most people have aversions to _____ tastes.
 - a. sweet
 - b. salty
 - c. fatty
 - d. bitter
20. The digestive tract needs _____, which provides the bulk against which the muscles of the colon can work.
 - a. energy
 - b. fiber
 - c. nutrients
 - d. water
21. The primary organ of digestion and absorption is the:
 - a. mouth.
 - b. stomach.
 - c. small intestine.
 - d. large intestine.
22. The stomach's main function is the digestion of what nutrient?
 - a. protein
 - b. carbohydrate
 - c. fat
 - d. fiber
23. The purpose of the villi and microvilli in the intestinal tract is to:
 - a. move food components through the intestinal tract to be removed from the body.
 - b. reduce the absorbing surface of the intestines.
 - c. trap the nutrient particles and absorb them into the cells.
 - d. prevent nutrients from being absorbed.
24. In cases of severe undernutrition, the small intestine will react by:
 - a. shrinking to a much smaller surface.
 - b. expanding to a much larger surface.
 - c. increasing intestinal muscle activity.
 - d. increasing the amount of nutrients absorbed.
25. The major function of the kidneys is to:
 - a. dilute wastes in water so they can recirculate in the body.
 - b. capture nutrients and return them to the blood.
 - c. excrete wastes from the body in urine.
 - d. remove fluid from the bladder.
26. The liver converts excess energy-containing nutrients into:
 - a. glycogen.
 - b. protein.
 - c. fat.
 - d. a and b
 - e. a and c
27. Which of the following is characteristic of liver glycogen?
 - a. It is stored for the body's ongoing glucose needs.
 - b. It can be released into the blood as glucose.
 - c. It represents a three-day supply of glucose.
 - d. a and b
 - e. b and c
28. Without food to replenish it, the liver's glycogen supply can be depleted within as few as:
 - a. 1-3 hours.
 - b. 3-6 hours.
 - c. 4-8 hours.
 - d. 6-9 hours.
29. The bones provide reserves of:
 - a. vitamins.
 - b. calcium.
 - c. glycogen.
 - d. a and b
 - e. b and c
30. Which of the following is **not** one of the major storage sites that store nutrients for release to meet the cells' needs between meals?
 - a. liver
 - b. muscles
 - c. fat cells
 - d. pancreas

Application-Level Multiple-Choice Items

31. Cells are related to the nutrients we eat in foods because:
 - a. cells create certain essential nutrients if we do not eat enough of them.
 - b. all cells replenish themselves every few days with nutrients that are consumed.
 - c. nutrients can affect how the genes in cells work.
 - d. enzymes are created to slow down the chemical reactions of a nutrient.
32. A gene variation in the cells can occasionally cause an inborn error of metabolism. If this is discovered by a healthcare provider, the advice would be to:
 - a. not worry because this is a temporary condition.
 - b. eat a special diet that will minimize its potential harm to the body.
 - c. obtain a tissue transplant that will introduce new genes to the cells.
 - d. avoid all processed foods.
33. The importance of the lungs in the circulatory system is that they are responsible for:
 - a. adding oxygen to the blood.
 - b. removing glucose from the blood.
 - c. adding nutrients to the blood.
 - d. removing extra water from the blood.
34. Nutrients delivered from the intestines into the circulatory system are:
 - a. transported through the blood to the liver for chemical alterations to make them better suited for use by the tissues.
 - b. transported to the heart, which then delivers them to the individual cells in the body.
 - c. transported to the kidneys, which send them to the cells in the body.
 - d. transported through the lymph system to the heart for distribution.
35. A person can eat when hunger is absent because:
 - a. the hypothalamus monitors the availability of nutrients.
 - b. the conscious mind of the cortex can override body signals.
 - c. the digestive tract sends messages to the hypothalamus.
 - d. the stomach intensifies its contractions and creates hunger pangs.
36. During the fight-or-flight reaction to stress the nervous system reacts by:
 - a. temporarily shutting down metabolism.
 - b. slowing down breathing to conserve oxygen.
 - c. releasing stored glucose from the liver.
 - d. speeding up the work of the digestive system.
37. What is the role of the phagocytes and lymphocytes in protecting the body from invading organisms?
 - a. Phagocytes release antibodies against the invaders into the bloodstream.
 - b. T-cells release a chemical trail for identification of invaders.
 - c. B-cells engulf and digest the foreign particles.
 - d. Killer T-cells seek out and destroy all foreign particles with the same identity.
38. Chronic, low-grade inflammation in chronic disease is of interest because:
 - a. it is an indication that the disease process is improving.
 - b. it foretells of the risk of death from the disease.
 - c. an important predictor is being underweight.
 - d. no dietary factors can have an effect on its progression.
39. When given a choice between tasting a snack of cookies, potato chips, or dill pickles, most people would:
 - a. select the pickle because we have a universal desire for sour foods.
 - b. avoid the potato chips because most people don't like a salty taste.
 - c. select the cookies because of our preference for sweet tastes.
 - d. avoid the cookies because of a common dislike for the taste of fat.
40. Digestion of foods includes the mechanical actions of:
 - a. chewing to allow some nutrients to be absorbed into the body through the tongue.
 - b. peristalsis waves to move the foods down through the digestive tract.
 - c. the stomach to gently release foods into the small intestine.
 - d. the small intestine to absorb water and create the paste that forms feces.

41. Which of the following statements is true regarding the timing of meals?
- Timing of meals is important because the digestive tract is unable to digest foods at certain times.
 - A meal should be consumed immediately before exercise to enhance physical work.
 - Eating a meal late at night is desirable because it facilitates sleep.
 - Timing of meals is important to feeling well.
42. Digestion of macronutrients begins in the mouth with enzyme action on:
- starches by carbohydrases.
 - proteins by proteases.
 - fats by lipases.
 - a and b
 - a and c
43. The digestive juices in the digestive tract include:
- gastric juice in the stomach, which has the role of digesting fats.
 - pancreatic juice, which neutralizes stomach acids reaching the small intestine.
 - saliva, which begins the digestion of protein.
 - bile released by the gallbladder to break down carbohydrates in the stomach.
44. The vast majority of fat digestion takes place in the:
- mouth with lipases secreted in the saliva.
 - stomach with lipases mixed with gastric juices.
 - small intestine with lipases released by the pancreas.
 - large intestine with lipases mixed with water.
45. You have just consumed a meal very high in fat. As a result, hormonal messages will tell an organ to send _____ in amounts matched to the amount of fat present.
- bile
 - bicarbonate
 - hydrochloric acid
 - mucus
46. As food moves through the digestive tract it spends the most time in the:
- esophagus because of the slow movement of peristalsis on chewed food.
 - stomach because of the extensive breakdown of carbohydrates and fats.
 - small intestine because of the time it takes to absorb through the villi.
 - large intestine because of the need to partially digest fiber and absorb water.
47. As the villi in the small intestine are exposed to nutrients:
- they will absorb the greatest percentage possible of every nutrient into the blood.
 - they will deliver minerals into the lymph system for transport.
 - they will absorb partially digested fiber into the blood for delivery to the colon.
 - they will preferentially absorb a greater percentage of deficient nutrients.
48. What are the major roles of the villi and microvilli in the small intestine?
- The microvilli absorb nutrients into the lymphatic system.
 - The microvilli trap nutrients so the villi cells can absorb them.
 - The villi block toxins from absorption into the blood.
 - The villi complete the breakdown of foods into nutrients.
49. Which of the following would occur in a malnourished child?
- The absorptive surface of the small intestine would increase in size.
 - The absorptive surface of the small intestine would become more efficient at its job.
 - The absorptive surface of the small intestine would shrink.
 - a and b
 - b and c
50. Which of the following strategies should be used by someone experiencing heartburn?
- Drink liquids an hour before or after meals.
 - Eat smaller meals.
 - Lie down after meals.
 - a and b
 - b and c

51. If you are taking medications to treat the discomfort caused by heartburn, it is important to know that:
- antacids will only temporarily relieve pain by neutralizing stomach acid for a while.
 - acid reducers are effective for neutralizing acid already present in the stomach.
 - antacids are a good treatment for gastroesophageal reflux disease (GERD).
 - heartburn medicine works best if taken with a large glass of liquid during a meal.
52. Which of the following advice would you give to a friend suffering from constipation?
- Consume foods with adequate fiber.
 - Drink enough water.
 - Take a laxative.
 - a and b
 - b and c
53. When the colon is not functioning properly, complications that may arise include:
- constipation, which can best be relieved with laxatives used on a regular basis.
 - diarrhea, which can be corrected by colonic irrigation.
 - indigested foods from improper combinations that cannot be digested completely.
 - irritable bowel syndrome, which can be managed with diet adjustments and stress reduction techniques.
54. The main function of the kidneys is to:
- retrieve vital nutrients from urine and send them back to the liver for processing.
 - remove carbon dioxide from the blood and excrete it in urine.
 - remove everyday wastes and water from the body.
 - store extra glycogen for use in emergencies by the body.
55. A person in an emergency situation is unable to eat for several weeks. Which of the following would provide the energy that this person would need to survive?
- fat
 - liver glycogen
 - bones
 - muscle glycogen
56. Which of the following should be consumed at intervals throughout the day?
- vitamin-rich foods
 - fat-containing foods
 - mineral-rich foods
 - carbohydrate-containing foods
57. Glycogen is stored in the body for future use. If it is drawn upon it will:
- be readily available because it is stored in unlimited amounts in the muscles.
 - be depleted from the liver after several days.
 - provide energy for cell activities during extended between-meal intervals.
 - be replaced easily by carbohydrate eaten once a day.
58. Excess nutrients are stored in various body tissues for future use. An example of this would be:
- fat, which is stored in small amounts in cells and which needs frequent replenishing.
 - glycogen, which has unlimited storage capacity in the muscles.
 - vitamins, which all can be stored in unlimited amounts in muscle tissue.
 - calcium, which is stored in reserves in the skeletal system.
59. If you do not eat on a regular basis throughout the day, the effect on the body will be:
- extremely disruptive because you need to provide calories from food on a regular basis to the cells.
 - minimal because you have unlimited stores of glycogen in your muscles to provide energy for the whole body.
 - a coordinated effort to draw stored energy from various parts of the body.
 - a shortage of all vitamins because the cells cannot store them adequately.

Controversy 3 Multiple-Choice Items

60. Which of the following deliver(s) one-half ounce of ethanol?
- 5 ounces of wine
 - 2 ounces hard liquor
 - 12 ounces beer
 - a and b
 - a and c
61. A person can become intoxicated almost immediately when drinking, especially if:
- the stomach is empty.
 - drinks are consumed slowly.
 - carbohydrate snacks are consumed at the same time.
 - the drink is diluted with water.
62. Which of the following organs makes almost all of the body's alcohol-processing machinery?
- stomach
 - pancreas
 - liver
 - spleen
63. Which of the following restores sobriety in someone who has been drinking alcohol?
- time
 - walking
 - drinking coffee
 - eating food
64. Alcohol affects body functions in all of the following ways **except**:
- it alters vitamin A metabolism.
 - it slows down the synthesis of fatty acids.
 - it weakens the body's defenses against infection.
 - it weakens skeletal and cardiac muscle.
65. Alcohol's effect on nutrition is important because:
- the more you drink, the more nutrients you will consume.
 - liver cells more effectively activate vitamin D and process vitamin A.
 - the kidneys will reduce the excretion of magnesium, calcium, potassium, and zinc.
 - alcohol causes the liver to expel folate into the blood for excretion by the kidneys.
66. Although the recommendation is to drink in moderation if consuming alcohol, the following problem may still need to be considered:
- moderation is difficult to define because of differences in tolerance among people.
 - moderate consumption may cause a person to lose weight when not desired.
 - moderate drinkers may become loud, angry, or violent.
 - the brain swells with exposure to alcohol.
67. You are concerned about a classmate who is binge drinking on a regular basis and want to let him know about long-term complications that may rise from that practice. What would you tell him to try to convince him to cut back on drinking?
- It is better to drink beer and wine because they are milder than mixed drinks.
 - Alcohol slows down fat metabolism so you need to eat more fat in your diet.
 - Excessive alcohol intake can lead to deterioration of skeletal and heart muscle.
 - It is better to drink on an empty stomach so the body can metabolize it quickly.
68. A friend of yours is considering drinking one glass of wine a day because she has heard that it may reduce her risk of heart attacks. What information would you provide to her?
- She would be not only decreasing her heart attack risk but also her breast cancer risk.
 - In middle-aged populations, taking 1-2 drinks a day may benefit the heart.
 - Wine contains many more antioxidant flavonoids than other fruits and vegetables.
 - She needs to drink more glasses per day to receive the most effective benefit.

Use the label below to answer questions 69-73.

Don Quixote Margarita Mix	
Nutrition Facts	
Serving Size 4 fl oz.	
Servings Per Container 15	
Amount Per Serving	
Calories 110	Calories from Fat 0
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 55mg	2%
Total Carbohydrate 28g	9%
Dietary Fiber 0g	0%
Sugars 24g	
Protein 0g	0%

69. This margarita mix is the “classic lime” flavor; however, the label states that it “contains 0% juice.” What would be the best statement about the vitamin C contribution of this drink?

- If the mix has a lime flavor, it will provide a good source of vitamin C.
- Because there is no juice contained in the mix, it will not provide any vitamin C.
- You need to refer to the Nutrition Facts panel for the Daily Value of vitamin C.
- When alcohol is added to the drink, it will destroy any vitamin C present in the mix.

70. A margarita made from 4 fl oz. of the mix plus 1.5 fl oz. of tequila will create a drink that provides how many calories?

- 117
- 120.5
- 123.5
- 215

71. For an individual with high blood pressure, drinking several margaritas made using the mix and tequila in a single evening would be:

- inadvisable because alcohol in large amounts raises blood pressure.
- fine because the Nutrition Facts label shows that the mix is low in sodium.
- allowable as long as salt is not added to the rim of the glass.
- not recommended unless no alcoholic beverages have been consumed earlier in the week.

72. A woman who is pregnant wants to drink a margarita made from the mix and tequila to relax herself after a long work week. What would be the best recommendation for her?

- If she limits her intake to one drink a day, she will be fine.
- She should avoid the alcohol and make a non-alcoholic version with only the mix.
- She should have the drink with a meal to slow the absorption of the alcohol.
- One or two drinks will be a good way to relax herself and reduce tension.

73. What is the effect of adding a pre-made mix to alcohol?

- dilutes the alcohol and prevents intoxication
- reduces the appetite and helps with weight loss
- is not adequate to prevent dehydration effects in the cells
- will prevent hangover after consumption of several drinks

Matching Items

Match the digestive organs, listed on the left, with their appropriate functions, listed on the right.

- | | |
|--------------------|---|
| 1. mouth | a. manufactures bile to help digest fats |
| 2. esophagus | b. conducts bile into the small intestine |
| 3. stomach | c. opens to allow elimination |
| 4. small intestine | d. churns, mixes, and grinds food to a liquid mass |
| 5. liver | e. reabsorbs water and minerals |
| 6. gallbladder | f. stores bile until needed |
| 7. pancreas | g. passes food to stomach |
| 8. large intestine | h. manufactures enzymes to digest all energy-yielding nutrients |
| 9. rectum | i. chews and mixes foods with saliva |
| 10. anus | j. stores waste prior to elimination |
| | k. absorbs nutrients into blood and lymph |

Essay Items

- Identify and describe three factors necessary to ensure efficient circulation of fluid to all body cells.
- Describe how hormones affect nutrition.
- Describe what happens during the stress response and the possible consequences for people living in the modern world.
- Briefly describe the actions of the body's phagocytes and lymphocytes.
- Differentiate between the mechanical and chemical aspects of digestion.
- How would you respond to a friend's statement that people should not consume fruit and meat at the same meal?
- Describe what happens to digestion and absorption in cases of severe undernutrition.
- Explain why sources of carbohydrate should be consumed at intervals throughout the day.
- Explain why nutrient deficiencies are an inevitable consequence of alcohol abuse.
- What advice would you give to someone interested in improving her appetite with alcohol?

Answer Key

(ANS = answer, REF = page reference, DIF = difficulty, OBJ = learning objective)

True/False Items

- | | | | |
|------------|------------|--------------------------|----------|
| 1. ANS: T | REF: 73 | DIF: Comprehension-level | OBJ: 3.1 |
| 2. ANS: T | REF: 74 | DIF: Comprehension-level | OBJ: 3.2 |
| 3. ANS: F | REF: 84 | DIF: Comprehension-level | OBJ: 3.5 |
| 4. ANS: F | REF: 85-86 | DIF: Comprehension-level | OBJ: 3.5 |
| 5. ANS: T | REF: 97 | DIF: Comprehension-level | OBJ: 3.8 |
| 6. ANS: T | REF: 97 | DIF: Comprehension-level | OBJ: 3.8 |
| 7. ANS: F | REF: 78 | DIF: Comprehension-level | OBJ: 3.3 |
| 8. ANS: T | REF: 78 | DIF: Comprehension-level | OBJ: 3.3 |
| 9. ANS: T | REF: 81 | DIF: Comprehension-level | OBJ: 3.4 |
| 10. ANS: F | REF: 93 | DIF: Comprehension-level | OBJ: 3.6 |

11. ANS: T REF: 96 DIF: Comprehension-level OBJ: 3.7

Multiple-Choice Items

1. ANS: c	REF: 71	DIF: Comprehension-level	OBJ: 3.1
2. ANS: d	REF: 71	DIF: Comprehension-level	OBJ: 3.1
3. ANS: a	REF: 71	DIF: Comprehension-level	OBJ: 3.1
4. ANS: d	REF: 72	DIF: Comprehension-level	OBJ: 3.1
5. ANS: a	REF: 71-72	DIF: Comprehension-level	OBJ: 3.1
6. ANS: a	REF: 72	DIF: Comprehension-level	OBJ: 3.1
7. ANS: d	REF: 72	DIF: Comprehension-level	OBJ: 3.1
8. ANS: e	REF: 74	DIF: Comprehension-level	OBJ: 3.2
9. ANS: d	REF: 74	DIF: Comprehension-level	OBJ: 3.2
10. ANS: a	REF: 74	DIF: Comprehension-level	OBJ: 3.2
11. ANS: b	REF: 78	DIF: Comprehension-level	OBJ: 3.3
12. ANS: c	REF: 78	DIF: Comprehension-level	OBJ: 3.3
13. ANS: d	REF: 78	DIF: Comprehension-level	OBJ: 3.3
14. ANS: b	REF: 78	DIF: Comprehension-level	OBJ: 3.3
15. ANS: c	REF: 79	DIF: Comprehension-level	OBJ: 3.3
16. ANS: a	REF: 80	DIF: Comprehension-level	OBJ: 3.4
17. ANS: b	REF: 80	DIF: Comprehension-level	OBJ: 3.4
18. ANS: c	REF: 81	DIF: Comprehension-level	OBJ: 3.4
19. ANS: d	REF: 81	DIF: Comprehension-level	OBJ: 3.5
20. ANS: b	REF: 85	DIF: Comprehension-level	OBJ: 3.5
21. ANS: c	REF: 86	DIF: Comprehension-level	OBJ: 3.5
22. ANS: a	REF: 86	DIF: Comprehension-level	OBJ: 3.5
23. ANS: c	REF: 90	DIF: Comprehension-level	OBJ: 3.5
24. ANS: a	REF: 90	DIF: Comprehension-level	OBJ: 3.5
25. ANS: c	REF: 96	DIF: Comprehension-level	OBJ: 3.7
26. ANS: e	REF: 96-97	DIF: Comprehension-level	OBJ: 3.8
27. ANS: d	REF: 96-97	DIF: Comprehension-level	OBJ: 3.8
28. ANS: b	REF: 97	DIF: Comprehension-level	OBJ: 3.8
29. ANS: b	REF: 97	DIF: Comprehension-level	OBJ: 3.8
30. ANS: d	REF: 96	DIF: Comprehension-level	OBJ: 3.8
31. ANS: c	REF: 72	DIF: Application-level	OBJ: 3.1
32. ANS: b	REF: 72	DIF: Application-level	OBJ: 3.1
33. ANS: a	REF: 74	DIF: Application-level	OBJ: 3.2
34. ANS: a	REF: 74	DIF: Application-level	OBJ: 3.2
35. ANS: b	REF: 78-79	DIF: Application-level	OBJ: 3.3
36. ANS: c	REF: 79	DIF: Application-level	OBJ: 3.3
37. ANS: d	REF: 80	DIF: Application-level	OBJ: 3.4
38. ANS: b	REF: 81	DIF: Application-level	OBJ: 3.4
39. ANS: c	REF: 81	DIF: Application-level	OBJ: 3.5
40. ANS: b	REF: 84-85	DIF: Application-level	OBJ: 3.5
41. ANS: d	REF: 85-86	DIF: Application-level	OBJ: 3.5
42. ANS: e	REF: 86	DIF: Application-level	OBJ: 3.5
43. ANS: b	REF: 86	DIF: Application-level	OBJ: 3.5
44. ANS: c	REF: 86 88	DIF: Application-level	OBJ: 3.5
45. ANS: a	REF: 86 87 88	DIF: Application-level	OBJ: 3.5
46. ANS: d	REF: 89-90	DIF: Application-level	OBJ: 3.5
47. ANS: d	REF: 90	DIF: Application-level	OBJ: 3.5
48. ANS: b	REF: 90	DIF: Application-level	OBJ: 3.5
49. ANS: c	REF: 90	DIF: Application-level	OBJ: 3.5
50. ANS: d	REF: 92-93	DIF: Application-level	OBJ: 3.6
51. ANS: a	REF: 93	DIF: Application-level	OBJ: 3.6
52. ANS: d	REF: 93-94	DIF: Application-level	OBJ: 3.6
53. ANS: d	REF: 93-94	DIF: Application-level	OBJ: 3.6

32

54. ANS: c	REF: 96	DIF: Application-level	OBJ: 3.7
55. ANS: a	REF: 97	DIF: Application-level	OBJ: 3.8
56. ANS: d	REF: 97	DIF: Application-level	OBJ: 3.8
57. ANS: c	REF: 96-97	DIF: Application-level	OBJ: 3.8
58. ANS: d	REF: 96-97	DIF: Application-level	OBJ: 3.8
59. ANS: c	REF: 97	DIF: Application-level	OBJ: 3.8
60. ANS: e	REF: 102	DIF: Comprehension-level	OBJ: 3.9
61. ANS: a	REF: 104	DIF: Comprehension-level	OBJ: 3.9
62. ANS: c	REF: 106	DIF: Comprehension-level	OBJ: 3.9
63. ANS: a	REF: 106	DIF: Comprehension-level	OBJ: 3.9
64. ANS: b	REF: 107-110	DIF: Comprehension-level	OBJ: 3.9
65. ANS: d	REF: 109-110	DIF: Comprehension-level	OBJ: 3.9
66. ANS: a	REF: 102-103	DIF: Comprehension-level	OBJ: 3.9
67. ANS: c	REF: 103-106	DIF: Application-level	OBJ: 3.9
68. ANS: b	REF: 100-101 108	DIF: Application-level	OBJ: 3.9
69. ANS: c	REF: 109-110	DIF: Application-level	OBJ: 3.9
70. ANS: d	REF: 109	DIF: Application-level	OBJ: 3.9
71. ANS: a	REF: 101	DIF: Application-level	OBJ: 3.9
72. ANS: b	REF: 108	DIF: Application-level	OBJ: 3.9
73. ANS: c	REF: 104 108 109	DIF: Application-level	OBJ: 3.9

Matching Items

1. ANS: i	REF: 83	DIF: Comprehension-level	OBJ: 3.5
2. ANS: g	REF: 83	DIF: Comprehension-level	OBJ: 3.5
3. ANS: d	REF: 83	DIF: Comprehension-level	OBJ: 3.5
4. ANS: k	REF: 83	DIF: Comprehension-level	OBJ: 3.5
5. ANS: a	REF: 83	DIF: Comprehension-level	OBJ: 3.5
6. ANS: f	REF: 83	DIF: Comprehension-level	OBJ: 3.5
7. ANS: h	REF: 83	DIF: Comprehension-level	OBJ: 3.5
8. ANS: e	REF: 83	DIF: Comprehension-level	OBJ: 3.5
9. ANS: j	REF: 83	DIF: Comprehension-level	OBJ: 3.5
10. ANS: c	REF: 83	DIF: Comprehension-level	OBJ: 3.5

Essay Items

1. REF: 74-76	DIF: Comprehension-level	OBJ: 3.2
2. REF: 78-79	DIF: Comprehension-level	OBJ: 3.3
3. REF: 79	DIF: Application-level	OBJ: 3.3
4. REF: 80	DIF: Comprehension-level	OBJ: 3.4
5. REF: 84-89	DIF: Comprehension-level	OBJ: 3.5
6. REF: 87 89	DIF: Application-level	OBJ: 3.5
7. REF: 90	DIF: Comprehension-level	OBJ: 3.5
8. REF: 96-97	DIF: Comprehension-level	OBJ: 3.8
9. REF: 109-110	DIF: Comprehension-level	OBJ: 3.9
10. REF: 109-110	DIF: Application-level	OBJ: 3.9