

# Test Bank for Understanding Nutrition 14th Edition by Whitney and Rolfe

## Chapter 10 – The Water-Soluble Vitamins: B Vitamins and Vitamin C

### MULTIPLE CHOICE

1. Which of the following is a feature of vitamins?

- a. Many serve in the role of enzyme inhibitors.
- b. Structurally, many are found linked together.
- c. Several may be oxidized to yield 4 kcalories per gram.
- d. The quantities present in foods are measured in micrograms or milligrams.
- e. Some are both water- and fat-soluble.

ANS: D  
Overview

DIF: Bloom's: Remember

REF: 10.1 The Vitamins—an

OBJ: UNUT.WHRO.16.10.1 Describe how vitamins differ from the energy nutrients and how fat-soluble vitamins differ from water-soluble vitamins.

2. What is a precursor?

- a. A conditionally essential vitamin
- b. A sign or symptom of a clinical vitamin deficiency disorder
- c. A substance that is used to synthesize another compound
- d. A substance that is recycled through the liver and intestines
- e. A sign or symptom of a subclinical vitamin deficiency disorder

ANS: C  
Overview

DIF: Bloom's: Remember

REF: 10.1 The Vitamins—an

OBJ: UNUT.WHRO.16.10.1 Describe how vitamins differ from the energy nutrients and how fat-soluble vitamins differ from water-soluble vitamins.

3. What is meant by the bioavailability of a vitamin in food?

- a. The total amount available from plant and animal food
- b. The amount absorbed and subsequently used by the body
- c. The amount that escapes destruction from food processing
- d. The number of different chemical forms of the same vitamin
- e. The number of kcal that can be produced from the vitamin

ANS: B  
Overview

DIF: Bloom's: Remember

REF: 10.1 The Vitamins—an

OBJ: UNUT.WHRO.16.10.1 Describe how vitamins differ from the energy nutrients and how fat-soluble vitamins differ from water-soluble vitamins.

4. Milk and milk products provide much of the \_\_\_\_\_ in people's diets.

- a. Thiamin
- b. Vitamin A
- c. Riboflavin
- d. Vitamin B<sub>12</sub>
- e. Vitamin C

ANS: C  
Overview

DIF: Bloom's: Remember

REF: 10.1 The Vitamins—an

OBJ: UNUT.WHRO.16.10.1 Describe how vitamins differ from the energy nutrients and how fat-soluble vitamins differ from water-soluble vitamins.

5. What is the primary excretory route for the water-soluble vitamins?

- a. Bile
- b. Kidney
- c. Intestine
- d. Perspiration
- e. Feces

ANS: B  
Overview

DIF: Bloom's: Remember

REF: 10.1 The Vitamins—an

OBJ: UNUT.WHRO.16.10.1 Describe how vitamins differ from the energy nutrients and how fat-soluble vitamins differ from water-soluble vitamins.

6. What is a chief function of the B vitamins?

- a. Antioxidation
- b. Anticoagulation
- c. Antibody stabilization
- d. Coenzyme participation
- e. Reproductive support

ANS: D

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

7. Which of the following functions has a requirement for thiamin?

- a. Blood coagulation
- b. Formation of red blood cells
- c. Energy release from energy-yielding nutrients
- d. Formation of epithelial cell mucopolysaccharides
- e. Production of histamine

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

8. Which of the following is the coenzyme form of thiamin?

- a. Thiaminacide
- b. Thiamin pyrophosphate
- c. Thiamin adenine dinucleotide
- d. Thiamin mononucleotide
- e. Thiamin flavin

ANS: B

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

9. Beriberi results from a deficiency of

- a. niacin.

- b. thiamin.
- c. vitamin C.
- d. vitamin B<sub>12</sub>.
- e. riboflavin.

ANS: B

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

10. Which of the following diets is most likely to lead to beriberi?

- a. High intakes of white rice
- b. Low intakes of whole grains
- c. High intakes of unrefined rice
- d. Low intakes of enriched grains
- e. High intakes of corn

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

11. The Wernicke-Korsakoff syndrome may be treated with supplements of

- a. folacin.
- b. thiamin.
- c. vitamin C.
- d. vitamin B<sub>12</sub>.
- e. niacin.

ANS: B

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

12. Which of the following is a characteristic of thiamin nutrition?

- a. It contains pyrosulfate.
- b. It is required for regeneration of folate
- c. It is required for regeneration of niacin
- d. It is an integral part of the nerve cell membrane
- e. It is integral in carrying activated carbon dioxide.

ANS: D

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

13. Which of the following provides the most thiamin per serving size?

- a. Ham
- b. Squash
- c. Whole milk
- d. Whole-grain breads
- e. Cheddar cheese

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

14. How does the method of cooking affect thiamin stability?

- a. Microwaving the food conserves much of the thiamin.
- b. Prolonged heating of the food has little, if any, effect on the thiamin.
- c. Boiling the food tends to conserve thiamin by forming a stable, hydrated complex.
- d. Steaming the food can lead to substantial thiamin loss due to the high heat needed to form the steam.
- e. Blanching the food before cooking it will preserve thiamin content.

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

15. Which of the following contains the highest concentration of thiamin?

- a. Pork
- b. Fish
- c. Beef
- d. Chicken
- e. Tofu

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

16. Which of the following is indicative of a dietary deficiency of riboflavin?

- a. Beriberi
- b. Diarrhea
- c. Keratomalacia
- d. Inflamed mouth membranes
- e. Facial clefts

ANS: D

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

17. Which of the following contains the highest amount of riboflavin when expressed per kcalorie?

- a. Cheddar cheese
- b. Pinto beans
- c. Tuna (in water)
- d. Liver
- e. Strawberries

ANS: D

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

18. The signs and symptoms of riboflavin deficiency are known collectively as

- a. pellagra.
- b. antflavonosis.



- c. ariboflavinosis.
- d. flavin adenine dinucleosis.
- e. beriberi.

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

19. Riboflavin needs are more difficult to meet when the diet is low in

- a. meats.
- b. grains.
- c. vegetables.
- d. dairy foods.
- e. fruits.

ANS: D

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

20. The coenzyme FAD is formed from what vitamin?

- a. Niacin
- b. Choline
- c. Thiamin
- d. Riboflavin
- e. Pantothenic acid

ANS: D

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

21. Of the following commonly eaten foods, which makes the greatest contribution to riboflavin intake?

- a. Milk
- b. Potatoes
- c. Orange juice
- d. Peanut butter
- e. Carrots

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

22. A deficiency of what vitamin produces a characteristic cracking and redness at the corners of the mouth?

- a. Biotin
- b. Niacin
- c. Riboflavin
- d. Ascorbic acid
- e. B<sub>6</sub>

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

23. Which of the following is a property of riboflavin in nutrition?

- a. Stability to heat is good.
- b. Deficiency leads to beriberi.
- c. Requirements are proportional to body weight.
- d. Significant amounts are found in citrus products.
- e. Stability to irradiation is good.

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

24. Which of the following is a property of niacin in nutrition?

- a. It is susceptible to destruction in foods exposed to light
- b. It participates primarily in reactions involving amino acids
- c. It is soluble in both water and lipids depending upon its chemical form
- d. It can be synthesized in the body from the essential amino acid tryptophan
- e. It can increase LDL and decrease HDL in large doses.

ANS: D

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

25. When the diet contains an adequate amount of protein, what amino acid can be used by the body to synthesize niacin?

- a. Lysine
- b. Valine
- c. Tryptophan
- d. Phenylalanine
- e. Glycine

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

26. Which of the following nutrients functions to prevent the appearance of a bilateral, symmetrical dermatitis, primarily on areas exposed to the sun?

- a. Niacin
- b. Choline
- c. Inositol
- d. Riboflavin
- e. Vitamin C

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

27. What vitamin deficiency disease appeared in people who had subsisted on a diet high in corn and low in protein?

- a. Scurvy

- b. Pellagra
- c. Wet beriberi
- d. Pernicious anemia
- e. Scaly dermatitis

ANS: B

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

28. Which of the following overt side effect(s) is likely to appear after a person ingests a high quantity of nicotinic acid?

- a. Constipation
- b. Mental confusion
- c. Painful, tingling, itching sensation
- d. Hair loss, bloating, and photophobia
- e. Sudden increase in blood pressure

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

29. Which of the following is a feature of niacin nutrition?

- a. Low doses may lead to kidney stones.
- b. High doses may lower blood cholesterol.
- c. Low doses may lead to heartburn and low blood pressure.
- d. High doses may elevate red blood cell count in mildly anemic individuals.
- e. High doses may cause hypoglycemia.

ANS: B

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

30. Your friend Jane just returned from the doctor, who diagnosed her with a specific vitamin B toxicity. However, she doesn't recall the name of the vitamin. Which of the following is the only possible culprit associated with toxicity symptoms?

- a. Niacin
- b. Biotin
- c. Riboflavin
- d. Vitamin B<sub>12</sub>
- e. Thiamin

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

31. Among the following, which would be the best source of niacin equivalents?

- a. Milk
- b. Broccoli
- c. Chicken
- d. Strawberries
- e. Whole wheat bread

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

32. Which of the following is a feature of pantothenic acid in nutrition?

- a. Absorption from foods is inhibited by aspirin.
- b. A deficiency or a toxicity shows similar symptoms.
- c. Deficiencies are seen primarily in children ages 4-10 years.
- d. It functions in the metabolism of amino acids, glucose, and fatty acids.
- e. It is possible to develop toxic levels on pantothenic acid if too much is ingested.

ANS: D

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

33. Which of the following foods contains a protein that decreases bioavailability of biotin?

- a. Aged wine
- b. Aged cheese
- c. Raw egg whites
- d. Raw cauliflower
- e. Citrus fruits

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

34. Biotin can be synthesized by

- a. avidin.
- b. the skin.
- c. the liver.
- d. intestinal bacteria.
- e. bone marrow.

ANS: D

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

35. Which of the following vitamins is known to sustain substantial losses during processing of food?

- a. Biotin
- b. Niacin
- c. Vitamin B<sub>12</sub>
- d. Pantothenic acid
- e. Inositol

ANS: D

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

36. Which of the following vitamins is stored primarily in muscle tissue?

- a. Biotin
- b. Folate



- c. Vitamin B<sub>6</sub>
- d. Pantothenic acid
- e. Thiamin

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

37. What vitamin is involved intensively in amino acid metabolism?

- a. Biotin
- b. Vitamin A
- c. Vitamin B<sub>6</sub>
- d. Riboflavin
- e. Vitamin C

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

38. A common drug for the treatment of tuberculosis is known to markedly interfere in the metabolism of vitamin

- a. B<sub>2</sub>.
- b. B<sub>6</sub>.
- c. B<sub>12</sub>.
- d. C.
- e. D.

ANS: B

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

39. Irreversible nerve damage has been reported in people taking large doses of vitamin

- a. B<sub>1</sub>.
- b. B<sub>2</sub>.
- c. B<sub>6</sub>.
- d. B<sub>7</sub>.
- e. B<sub>12</sub>.

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

40. In what major way does alcohol intake affect vitamin B<sub>6</sub> metabolism?

- a. It reduces acetaldehyde formation.
- b. It increases fecal excretion of the vitamin.
- c. It dislodges the PLP coenzyme from its enzyme.
- d. It interferes with synthesis of the PLP coenzyme.
- e. It increases urinary excretion of B<sub>6</sub>.

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

41. On a per-kcalorie basis, which of the following foods is richest in vitamin B<sub>6</sub>?

- a. Meats
- b. Fruits
- c. Legumes
- d. Grains
- e. Dairy

ANS: B

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

42. Pteroylglutamic acid is known as

- a. folate.
- b. choline.
- c. inositol.
- d. pyridoxamine.
- e. niacin.

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

43. Which of the following vitamins undergoes significant enterohepatic circulation?

- a. Folate
- b. Niacin
- c. Thiamin
- d. Pyridoxine
- e. Pantothenic acid

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

44. Which of the following vitamins is usually found in a form that is bound to one or more pteroylglutamic acid molecules in food?

- a. Folate
- b. Thiamin
- c. Vitamin B<sub>6</sub>
- d. Ascorbic acid
- e. Vitamin B<sub>12</sub>

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

45. A person with a disorder that limits absorption of bile is at increased risk for deficiency of

- a. folate.
- b. niacin.
- c. riboflavin.

- d. ascorbic acid.
- e. pantothenic acid

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

46. Research has shown that the risk for neural tube defects is lowered by taking supplements of

- a. niacin.
- b. folate.
- c. vitamin C.
- d. vitamin B<sub>12</sub>.
- e. thiamin.

ANS: B

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

47. Which of the following is true regarding B vitamins and homocysteine metabolism?

- a. Folate catabolyzes homocysteine
- b. Biotin supplements reduce blood homocysteine levels
- c. Excessive homocysteine intake reduces vitamin B<sub>12</sub> absorption
- d. High blood homocysteine levels correlate with reduced incidence of colon cancer
- e. High folate levels are necessary for the synthesis of homocysteine

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

48. What vitamin contains cobalt?

- a. A
- b. B<sub>6</sub>
- c. B<sub>12</sub>
- d. Pantothenic acid
- e. Ascorbic acid

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

49. A deficiency of which of the following vitamins results in accumulation of homocysteine in the blood?

- a. Folate
- b. Biotin
- c. Niacin
- d. Vitamin K
- e. Vitamin C

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

50. What vitamin is involved mainly with the replacement of red blood cells and digestive tract cells?

- a. Folate
- b. Niacin
- c. Thiamin
- d. Riboflavin
- e. Choline

ANS: A

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

51. Which of the following is representative of folate availability in foods?

- a. Good sources are dairy products and meats.
- b. Poor sources are fruit juices and vegetable juices.
- c. Much of the vitamin is lost due to heat and oxidation.
- d. Only about 10% of the amount in foods is bioavailable.
- e. Legumes, nuts, and seeds have very little folate.

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

52. Which of the following foods is highest in folate?

- a. Meats
- b. Starches
- c. Dairy products
- d. Green, leafy vegetables
- e. Fruits

ANS: D

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

53. What is the most likely reason for the development of a vitamin B<sub>12</sub> deficiency?

- a. Inadequate intake
- b. Increased excretion
- c. Inadequate absorption
- d. Increased losses in food preparation
- e. Inadequate digestion

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

54. Pernicious anemia results from a deficiency of

- a. folate.
- b. selenium.
- c. vitamin B<sub>12</sub>.



- d. iron and copper.
- e. vitamin B<sub>6</sub>.

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

55. The absorption of which of the following vitamins is most affected by the disorder atrophic gastritis?

- a. Choline
- b. Vitamin C
- c. Vitamin B<sub>12</sub>
- d. Pantothenic acid
- e. Vitamin E

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

56. Normally, the body's storage and re-utilization of vitamin B<sub>12</sub> prevents a primary or secondary deficiency from occurring until after about

- a. 3 days.
- b. 3 weeks.
- c. 3 months.
- d. 1 year.
- e. 3 years.

ANS: E

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

57. Of the following foods, which would be the only source of vitamin B<sub>12</sub>?

- a. Pecans
- b. Hot dog
- c. Cauliflower
- d. Whole-grain bread
- e. Plain soy or rice milk

ANS: B

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

58. Which of the following vitamins has an RDA?

- a. Biotin
- b. Choline
- c. Cobalamin
- d. Pantothenic acid
- e. Carnitine

ANS: C

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

59. Which of the following is a feature of choline in nutrition?

- a. It is an analog of ascorbic acid.
- b. It is abundant in green leafy vegetables.
- c. The body can synthesize it from cysteine.
- d. Average intakes in the United States are lower than recommended.
- e. There is no RDA for it.

ANS: D

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

60. What is a free radical?

- a. An inactive vitamin
- b. An unphosphorylated vitamin
- c. A molecule of unbound cobalamins
- d. A molecule with at least one unpaired electron
- e. A nonbound vitamin

ANS: D

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.

61. Which of the following is a general function of vitamin C?

- a. Antiviral agent
- b. Antifungal agent
- c. Anticancer agent
- d. Antioxidant agent
- e. Emulsifying agent

ANS: D

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.

62. The synthesis of collagen requires both vitamin C and

- a. iron.
- b. zinc.
- c. cobalamin.
- d. beta-carotene.
- e. copper.

ANS: A

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.

63. What organ stores the highest concentration of vitamin C?

- a. Liver
- b. Muscle
- c. Thyroid gland
- d. Adrenal glands
- e. Hypothalamus

ANS: D

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.

64. Why might vitamin C supplements be beneficial in treating the common cold?

- a. They deactivate histamine.
- b. They reduce episodes of diarrhea.
- c. They destroy intestinal pathogens.
- d. They alter hypothalamic control of body temperature.
- e. They improve blood oxygenation.

ANS: A

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.

65. Which of the following is an early sign of vitamin C deficiency?

- a. Bleeding gums
- b. Pernicious anemia
- c. Appearance of a cold
- d. Hysteria and depression
- e. Oily skin

ANS: A

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.

66. Which of the following food groups is a rich source of vitamin C?

- a. Milk group
- b. Meat group
- c. Fruit group
- d. Grains group
- e. Oils group

ANS: C

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.

67. Which of the following would be a very good source of vitamin C for the lacto-ovo-vegetarian?

- a. Milk
- b. Eggs
- c. Broccoli
- d. Whole-grain bread
- e. Bananas

ANS: C

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.

68. Approximately what percentage of the U.S. population takes a multivitamin-mineral supplement regularly?

- a. 10
- b. 20
- c. 30
- d. 40
- e. 50

ANS: D                      DIF: Bloom's: Remember

REF: H-10 Vitamin and Mineral Supplements

OBJ: UNUT.WHRO.16.10.4 Present arguments for and against the use of dietary supplements

69. What nutrient is responsible for causing the most accidental ingestion deaths in children?

- a. Iron
- b. Calcium
- c. Vitamin A
- d. Vitamin D
- e. Magnesium

ANS: A                      DIF: Bloom's: Remember

REF: H-10 Vitamin and Mineral Supplements

OBJ: UNUT.WHRO.16.10.4 Present arguments for and against the use of dietary supplements

70. If a dietary supplement poses a significant risk of illness to consumers, what agency must prove harm before removing the product from the market?

- a. FDA
- b. CDC
- c. USDA
- d. USPHS
- e. DHHS

ANS: A                      DIF: Bloom's: Remember

REF: H-10 Vitamin and Mineral Supplements

OBJ: UNUT.WHRO.16.10.4 Present arguments for and against the use of dietary supplements

## **MATCHING**

- |             |                            |
|-------------|----------------------------|
| a. Pork     | k. Broccoli                |
| b. Corn     | l. Riboflavin              |
| c. Dairy    | m. Vitamin B <sub>6</sub>  |
| d. Folate   | n. Vitamin B <sub>12</sub> |
| e. Biotin   | o. Tryptophan              |
| f. Niacin   | p. Iron overload           |
| g. Choline  | q. Ascorbic acid           |
| h. Anemia   | r. Intrinsic factor        |
| i. Collagen | s. Ultraviolet light       |
| j. Beriberi | t. Pantothenic acid        |

1. Name of thiamin deficiency disease



2. A food unusually rich in thiamin
3. Exposure to this leads to destruction of riboflavin
4. A food source that supplies a substantial amount of people's riboflavin intake
5. Deficiency of this vitamin leads to cracks and redness at corners of the mouth
6. Used for synthesis of niacin
7. Overconsumption of this food has resulted in pellagra
8. High doses are known to lower LDL cholesterol
9. Deficiency of this vitamin is induced by feeding raw egg whites
10. This vitamin is a component of acetyl CoA
11. Toxicity from this vitamin is known to cause nerve damage and inability to walk
12. Prevention of neural tube defects is related to increased intake of this substance by pregnant women
13. One of the first symptoms of folate deficiency

14. Required to maintain nerve fiber sheath

15. Required for absorption of vitamin B<sub>12</sub>

16. Made in the body from methionine

17. The antiscorbutic factor

18. Vitamin C is required for the synthesis of this substance

19. Excess intake of vitamin C may aggravate this disorder

20. A concentrated source of vitamin C

1. ANS: J DIF: Bloom's: Remember REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources

for each of the B vitamins.

2. ANS: A DIF: Bloom's: Remember REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

3. ANS: S                      DIF: Bloom's: Remember                      REF: 10.2 The B  
Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

4. ANS: C                      DIF: Bloom's: Remember                      REF: 10.2 The B  
Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

5. ANS: L                      DIF: Bloom's: Remember                      REF: 10.2 The B  
Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

6. ANS: O                      DIF: Bloom's: Remember                      REF: 10.2 The B  
Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

7. ANS: B                      DIF: Bloom's: Remember                      REF: 10.2 The B  
Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

8. ANS: F                      DIF: Bloom's: Remember                      REF: 10.2 The B  
Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

9. ANS: E                      DIF: Bloom's: Remember                      REF: 10.2 The B  
Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

10. ANS: T                      DIF: Bloom's: Remember                      REF: 10.2 The B  
Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

11. ANS: M                      DIF: Bloom's: Remember                      REF: 10.2 The B  
Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

12. ANS: D                      DIF: Bloom's: Remember                      REF: 10.2 The B  
Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

13. ANS: H                      DIF: Bloom's: Remember                      REF: 10.2 The B  
Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

14. ANS: N                      DIF: Bloom's: Remember                      REF: 10.2 The B  
Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

15. ANS: R  
Vitamins

DIF: Bloom's: Remember

REF: 10.2 The B

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

16. ANS: G  
Vitamins

DIF: Bloom's: Remember

REF: 10.2 The B

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, & food sources for each of the B vitamins.

17. ANS: Q

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.

18. ANS: I

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.

19. ANS: P

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.

20. ANS: K

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.

## COMPLETION

1. Compounds that can be converted to vitamins in the body are called \_\_\_\_\_.

ANS: precursors; provitamins

DIF: Bloom's: Remember

REF: 10.1 The Vitamins—an Overview

OBJ: UNUT.WHRO.16.10.1 Describe how vitamins differ from the energy nutrients and how fat-soluble vitamins differ from water-soluble vitamins.

2. Water-soluble vitamins are absorbed directly into \_\_\_\_\_.

ANS: blood

DIF: Bloom's: Remember

REF: 10.1 The Vitamins—an Overview

OBJ: UNUT.WHRO.16.10.1 Describe how vitamins differ from the energy nutrients and how fat-soluble vitamins differ from water-soluble vitamins.

3. Prolonged thiamin deficiency can result in the disease \_\_\_\_\_.

ANS: beriberi

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins



OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, and food sources for each of the B vitamins.

4. The niacin-deficiency disease, \_\_\_\_\_, produces the symptoms of diarrhea, dermatitis, dementia, and eventually death

ANS: pellagra

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, and food sources for each of the B vitamins.

5. In order to protect against \_\_\_\_\_, all women of childbearing age who are capable of becoming pregnant should consume 0.4 milligram of folate daily.

ANS: neural tube defects

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, and food sources for each of the B vitamins.

6. Of all the vitamins, \_\_\_\_\_ appears to be most vulnerable to interactions with drugs, which can also lead to a secondary deficiency.

ANS: folate

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, and food sources for each of the B vitamins.

7. Older adults with B<sub>12</sub> deficiencies may develop \_\_\_\_\_, a condition that damages the cells of the stomach.

ANS: atrophic gastritis

DIF: Bloom's: Remember

REF: 10.2 The B Vitamins

OBJ: UNUT.WHRO.16.10.2 Identify the main roles, deficiency symptoms, and food sources for each of the B vitamins.

8. A(n) \_\_\_\_\_ is a molecule with one or more unpaired electrons, which makes it unstable and highly reactive.

ANS: free radical

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.

9. Vitamin C helps to form the fibrous structural protein of connective tissues known as \_\_\_\_\_.

ANS: collagen

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.

10. When vitamin C concentrations fall to about a fifth of optimal levels symptoms of \_\_\_\_\_ appear.

ANS: scurvy

DIF: Bloom's: Remember

REF: 10.3 Vitamin C

OBJ: UNUT.WHRO.16.10.3 Identify the main roles, deficiency symptoms, and food sources for vitamin C.