1. Which of the following best describes the role of antioxidants in food preservation?
a) Prevent the growth of bacteria
b) Improve the flavor of food
c) Inhibit oxidation of fats and oils
d) Enhance the nutritional content of food

2. Which of the following statements about trans fats is true?
a) They are naturally found in all plant oils
b) They raise LDL cholesterol and lower HDL cholesterol
c) They are considered beneficial to heart health
d) They are formed when fats are exposed to UV light

3. What is the primary reason for the use of irradiation in food processing?
a) To improve the taste of food
b) To kill microorganisms and increase shelf life
c) To enhance the color of food
d) To increase the nutritional value of food

4. Which of the following processes is essential for converting muscle into edible meat?
a) Anaerobic respiration
b) Rigor mortis
c) Hydrolysis
d) Oxidative phosphorylation

5. Which of the following food components is responsible for Maillard browning during cooking?
a) Lipids and starch
b) Amino acids and reducing sugars
c) Vitamins and minerals
d) Water and fiber

6. Which process helps in preventing rancidity in oils during long-term storage?
a) Freezing
b) Hydrogenation
c) Fermentation
d) Homogenization

7. Which type of packaging best extends the shelf life of fresh-cut fruits and vegetables?
a) Vacuum packaging
b) Modified atmosphere packaging (MAP)
c) Aseptic packaging
d) Active packaging

8. Why is vitamin B12 deficiency more common in vegans compared to non-vegans?
a) Vitamin B12 is primarily found in animal-based foods
b) Plant-based foods deplete vitamin B12 stores
c) Vegans consume too much fiber, blocking B12 absorption
d) Vitamin B12 is destroyed by cooking plant-based foods

9. Which of the following factors does NOT affect the bioavailability of a nutrient in the body?
a) The chemical form of the nutrient
b) The amount of digestive enzymes
c) The texture of the food
d) The presence of other compounds in the diet

10. What is the critical reason for blanching vegetables before freezing?
a) To kill all microorganisms
b) To inactivate enzymes that cause spoilage
c) To reduce the moisture content
d) To enhance flavor

11. Why is hemoglobin not a significant contributor to the color of meat compared to myoglobin?
a) Hemoglobin is degraded quickly after slaughter
b) Hemoglobin is not present in meat
c) Myoglobin is present in much higher concentrations
d) Hemoglobin only affects the color when exposed to light

12. What role do emulsifiers play in food systems?
a) They act as preservatives
b) They stabilize mixtures of oil and water
c) They enhance food texture by adding crunch
d) They improve the sweetness of food products

13. Which is the most energy-efficient method for preserving the nutrient content of fruits?
a) Canning
b) Air drying
c) Freezing
d) Fermentation

14. Which of the following foods is most susceptible to acrylamide formation during high-temperature cooking?
a) Eggs
b) Potatoes
c) Chicken breast
d) Fish fillets

15. Which type of enzyme is primarily responsible for the degradation of carbohydrates in the human digestive system?
a) Protease
b) Lipase
c) Amylase
d) Lactase

16. Which is the most effective way to reduce post-harvest losses of perishable fruits and vegetables?
a) Store at room temperature

b) Dry them immediately
c) Use cold chain logistics
d) Keep them exposed to light

17. Which essential fatty acid plays a critical role in brain function and development?
a) Linoleic acid
b) Docosahexaenoic acid (DHA)
c) Palmitic acid
d) Stearic acid

18. Which technology is primarily used to ensure food safety by controlling the growth of microorganisms in liquid foods?
a) Drying
b) High-pressure processing (HPP)
c) Lyophilization
d) Modified atmosphere packaging (MAP)

19. Which vitamin is essential for collagen synthesis, playing a key role in wound healing?
a) Vitamin D
b) Vitamin K
c) Vitamin C
d) Vitamin E

20. Which mechanism best explains how refrigeration slows down microbial growth in foods?
a) It increases the acidity of food
b) It removes water from the food
c) It decreases the activity of enzymes and metabolism of microbes
d) It alters the structure of fats

1. **Answer:** c) Inhibit oxidation of fats and oils
Reference: Fennema, O. R. (2008). *Fennema's Food Chemistry.* CRC Press.

2. **Answer:** b) They raise LDL cholesterol and lower HDL cholesterol
Reference: Whitney, E., & Rolfes, S. R. (2019). *Understanding Nutrition.* Cengage Learning.

3. Answer: b) To kill microorganisms and increase shelf life
Reference: Fellows, P. J. (2016). *Food Processing Technology: Principles and Practice.* Woodhead Publishing.

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4. Answer: b) Rigor mortis
Reference: Lawrie, R. A., & Ledward, D. A. (2014). *Lawrie's Meat Science.* Woodhead Publishing.

5. Answer: b) Amino acids and reducing sugars
Reference: Fennema, O. R. (2008). *Fennema's Food Chemistry.* CRC Press.

6. Answer: b) Hydrogenation
Reference: Fennema, O. R. (2008). *Fennema's Food Chemistry.* CRC Press.

7. Answer: b) Modified atmosphere packaging (MAP)
Reference: Fellows, P. J. (2016). *Food Processing Technology: Principles and Practice.* Woodhead Publishing

8. Answer: a) Vitamin B12 is primarily found in animal-based foods
Reference: Gropper, S. S., & Smith, J. L. (2017). *Advanced Nutrition and Human Metabolism.* Cengage Learning.

9. Answer: c) The texture of the food
Reference: Whitney, E., & Rolfes, S. R. (2019). *Understanding Nutrition.* Cengage Learning.

10. Answer: b) To inactivate enzymes that cause spoilage
Reference: Fellows, P. J. (2016). *Food Processing Technology: Principles and Practice.* Woodhead Publishing.

11. Answer: c) Myoglobin is present in much higher concentrations
Reference: Lawrie, R. A., & Ledward, D. A. (2014). *Lawrie's Meat Science.* Woodhead Publishing.

12. Answer: b) They stabilize mixtures of oil and water
Reference: Fennema, O. R. (2008). *Fennema's Food Chemistry.* CRC Press.

13. Answer: c) Freezing
Reference: Fellows, P. J. (2016). *Food Processing Technology: Principles and Practice.* Woodhead Publishing.

14. Answer: b) Potatoes
Reference: Whitacre, D. M. (2014). *Reviews of Environmental Contamination and Toxicology.* Springer.

15. Answer: c) Amylase
Reference: Gropper, S. S., & Smith, J. L. (2017). *Advanced Nutrition and Human Metabolism.* Cengage Learning

16. Answer: c) Use cold chain logistics
Reference: Fellows, P. J. (2016). *Food Processing Technology: Principles and Practice.* Woodhead Publishing.

17. Answer: b) Docosahexaenoic acid (DHA)
Reference: Whitney, E., & Rolfes, S. R. (2019). *Understanding Nutrition.* Cengage Learning.

18. Answer: b) High-pressure processing (HPP)
Reference: Fellows, P. J. (2016). *Food Processing Technology: Principles and Practice.* Woodhead Publishing.

19. Answer: c) Vitamin C
Reference: Mahan, L. K., & Raymond, J. L. (2020). *Krause's Food & the Nutrition Care Process.* Elsevier.

20 Answer: c) It decreases the activity of enzymes and metabolism of microbes
Reference: Jay, J. M., Loessner, M. J., & Golden, D. A. (2005). *Modern Food Microbiology.* Springer.