

Chapter 2: Food Safety and Sanitation

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

- 1) What type of hazard are pieces of broken glass found in a container of salad dressing?
 - A) biological hazard
 - B) chemical hazard
 - C) physical hazard
 - D) pest infection
- 2) How can you detect if food is contaminated?
 - A) "off" odour
 - B) visible mould
 - C) bitter taste
 - D) none of the above
- 3) What is one method of sanitizing food service dishes and equipment?
 - A) washing the items with an approved detergent
 - B) scraping and spraying with hot water to remove soil
 - C) hand washing in a three-compartment sink
 - D) immersing in 77°C (170° F) water for 30 seconds
- 4) After which situation should food handlers wash their hands?
 - A) smoking
 - B) clearing a table of dirty dishes
 - C) handling raw foods
 - D) all of the above
- 5) What is the range of the temperature danger zone?
 - A) 16–49°C (60–120°F)
 - B) 4–49°C (40–120°F)
 - C) 4–60°C (40–140°F)
 - D) 16–60°C (60–140°F)
- 6) Which of the following is not a leading cause of food-borne illnesses?
 - A) putrefactive bacteria
 - B) pathogenic bacteria
 - C) parasites
 - D) fungi
- 7) What is HACCP a system for?
 - A) supervising kitchen employees
 - B) maintaining sanitary conditions
 - C) standardizing recipes
 - D) controlling the flow of food

- 8) What is salmonella?
 - A) toxin
 - B) intoxication
 - C) toxin-mediated infection
 - D) infection
- 9) What should you immediately do when an infestation of cockroaches occurs?
 - A) contact a licensed pest control operator
 - B) purchase and apply pesticides yourself
 - C) clean and disinfect all exposed surfaces
 - D) ignore it as they do not pose a major health hazard
- 10) Which of the following is not a potentially hazardous food?
 - A) cut melon
 - B) garlic in oil
 - C) custard
 - D) none of the above
- 11) Which of the following most likely represents a chemical contamination?
 - A) slimy chicken
 - B) hair in the soup
 - C) shellfish feeding on toxic algae
 - D) none of the above
- 12) Which type of bacteria is not necessarily harmful to humans?
 - A) vegetative
 - B) passive
 - C) aerobes
 - D) putrefactive
- 13) Bacteria thrive on which one of the following types of foods:
 - A) proteins
 - B) potentially bad items
 - C) contaminated items
 - D) potentially hazardous items
- 14) Under ideal conditions bacteria can divide every:
 - A) 2–5 minutes
 - B) 5–10 minutes
 - C) 10–20 minutes
 - D) 30–50 minutes
- 15) In microorganisms, the period of accelerated growth that follows the period of adaptation to new conditions is the:
 - A) positive phase
 - B) growth phase
 - C) log phase
 - D) lag phase

- 16) To prevent pest infestation, foods and supplies should be stored off the floor. What is the recommended distance between the floor and the first shelf?
- A) 15cm (6 inches)
 - B) 30cm (12 inches)
 - C) 45cm (18 inches)
 - D) 2cm (1 inch)
- 17) Which of the following is a virus that often enters the food supply chain through shellfish harvested from polluted waters?
- A) hepatitis A
 - B) cyclospora
 - C) *Clostridium perfringens*
 - D) *Escherichia coli*
- 18) What is the temperature and time required to destroy anisakis?
- A) -18°C (0°F) for 4 days
 - B) -20°C (-4°F) for 7 days
 - C) 58°C (137°F) for 10 seconds
 - D) 60°C (140°F) for 10 minutes
- 19) What is the temperature and time required to destroy mould cells?
- A) 42°C (108°F) for 2 minutes
 - B) 58°C (137°F) for 10 seconds
 - C) 60°C (140°F) for 10 minutes
 - D) 65°C (150°F) for 10 seconds
- 20) What is the proper procedure for cooling foods?
- A) 37°C (98.6°F) within 2 hours, then down to 4°C (40°F) within 6 hours
 - B) 21°C (70°F) within 4 hours, then down to 4°C (40°F) within 2 hours
 - C) 4°C (40°F) within 8 hours
 - D) 21°C (70°F) within 2 hours, then down to 4°C (40°F) within 4 hours
- 21) Which of the following microorganisms is likely to produce a toxin-mediated infection?
- A) anisakis
 - B) salmonella
 - C) cyclospora
 - D) *E. coli*
- 22) What name is given to disease-causing bacteria?
- A) pathogenic
 - B) infectious
 - C) vegetative
 - D) putrefactive
- 23) What is the proper procedure for thawing frozen foods?
- A) in the microwave, quickly
 - B) in an oven set to 66°C (150°F)
 - C) at room temperature, slowly
 - D) in a refrigerator

- 24) It is recommended that food-service handlers wash their hands for at least:
- A) 20 seconds
 - B) 30 seconds
 - C) 40 seconds
 - D) 50 seconds
- 25) When hand washing in a three-compartment sink, what is the proper procedure for sanitizing?
- A) immerse in 77°C water for a minimum of 2 minutes
 - B) spray with hot water
 - C) immerse in 60°C water for a minimum of 4 minutes
 - D) none of the above
- 26) Most bacteria can be destroyed by exposing them to high temperatures for a sufficient amount of time. What is the minimum recommended temperature?
- A) 74°C
 - B) 60°C
 - C) 85°C
 - D) 65°C

TRUE/FALSE: Write “T” if the statement is true and “F” if the statement is false.

- 27) Frozen foods should be thawed slowly at room temperature.
- 28) Food service workers are the primary cause of food-borne illnesses.
- 29) Bacteria can thrive in an environment that has a low pH, such as lemon juice.
- 30) Most food-borne illnesses go undiagnosed because the symptoms may not appear for a week or more.
- 31) Roasts, ham, and ground beef should all be cooked to an internal temperature of 62°C.
- 32) Side towels are one of the most common causes of cross-contamination.
- 33) The correct ratio for a sanitizing solution is 15mL of bleach per 4.5 L of water.
- 34) Facultative bacteria can survive with or without oxygen.
- 35) Viruses, such as hepatitis A, can infect any food, not only potentially hazardous foods.
- 36) Anisakiasis is an illness that could result from consuming sushi.
- 37) A food worker touching his nose and then touching a food item is an example of direct contamination.
- 38) All bacteria, especially putrefactives, are dangerous to humans.
- 39) The temperature danger zone is 4°C to 60°C (40–140°F).
- 40) Raw seed sprouts are an example of a potentially hazardous food.
- 41) Most toxins can be destroyed at 82°C (180°F).

- 42) To clean means to destroy or remove all harmful substances.
- 43) Alkaline foods have a pH value higher than 7.
- 44) Freezing can be used to destroy bacteria.
- 45) All bacteria require air to survive.
- 46) Hepatitis A is often found in improperly pasteurized dairy products.
- 47) The temperature of the water in the wash cycle of a dishwasher should be 82°C.
- 48) *Escherichia coli* 0157:H7 is known to grow at refrigerator temperatures.
- 49) Water activity is the amount of water that bacteria need to survive.

SHORT ANSWER: Write the word or phrase that best completes each statement or answers the question.

- 50) What does FIFO stand for?
- 51) What is the time-and-temperature principle?
- 52) What food-borne illness is transmitted through milk products and deli meats?
- 53) What is the common name for bovine spongiform encephalopathy (BSE)?
- 54) What virus is spread by food-service workers with poor personal hygiene?
- 55) Foods in which bacteria can thrive are referred to as _____ foods.
- 56) The acronym HACCP stands for _____.
- 57) Microorganisms cannot generally move on their own. They need to be transported, an event known as _____.
- 58) An acceptable sanitizing solution is made by combining _____ litres of lukewarm water with _____ millilitres of _____.
- 59) In general, prepared foods should be kept below _____ or above _____.
- 60) Bacteria can be classified by their shape; rods have a _____ shape, cocci are _____, and spirilla are _____.
- 61) A bacterial illness that has characteristics of both intoxication and infection is known as a _____.
- 62) Some bacteria, known as _____, thrive on oxygen while others, known as _____, do not require oxygen.
- 63) Frozen foods should be stored at a temperature of _____ or lower.

64) Leftover food should be used within _____ by heating it to _____ within _____.

MATCHING: Choose the item in column 2 that best matches each item in column 1.

First question

- | | |
|----------------|--|
| 65. anisakis | A. source is often milk products |
| 66. cyclospora | B. form of intoxication |
| 67. strep | C. source is often infected food handlers with feces |
| 68. listeria | D. most often occurring bacterial illness |
| 69. salmonella | E. parasite that resides in the organs of fish |
| 70. botulism | F. parasite found in water contaminated |
| 71. virus | H. not affected by water activity |

Second question

- | | |
|------------------|-----------------------------------|
| 72. 45°C (113°F) | J. mechanical washing temperature |
| 73. 60°C (140°F) | I. yeasts are killed |
| 74. 58°C (136°F) | G. hand washing temperature |

ESSAY: Write your answer in the space provided or on a separate sheet of paper.

- 75) What is cross-contamination?
- 76) What two safe food-handling measures should you take after fabricating whole chickens?
- 77) What are the three critical control points when preparing beef stock?
- 78) What are four examples of safe behaviour in a professional kitchen?
- 79) What five conditions do bacterial intoxications and infections need in order to thrive?

Chapter 2: Answers

- 1) C Difficulty: 1
- 2) D Difficulty: 2
- 3) A Difficulty: 1
- 4) D Difficulty: 1
- 5) C Difficulty: 1
- 6) A Difficulty: 1
- 7) B Difficulty: 1
- 8) D Difficulty: 1
- 9) A Difficulty: 1
- 10) D Difficulty: 1
- 11) C Difficulty: 1
- 12) D Difficulty: 1
- 13) D Difficulty: 1
- 14) C Difficulty: 1
- 15) C Difficulty: 2
- 16) A Difficulty: 1
- 17) A Difficulty: 2
- 18) B Difficulty: 2
- 19) C Difficulty: 2
- 20) D Difficulty: 2
- 21) D Difficulty: 2
- 22) A Difficulty: 1
- 23) D Difficulty: 1
- 24) B Difficulty: 1

25) A Difficulty: 2

26) A Difficulty: 2

27) FALSE Difficulty: 1

28) TRUE Difficulty: 1

29) FALSE Difficulty: 1

30) TRUE Difficulty: 1

31) FALSE Difficulty: 1

32) TRUE Difficulty: 1

33) TRUE Difficulty: 1

34) TRUE Difficulty: 1

35) TRUE Difficulty: 1

36) TRUE Difficulty: 1

37) TRUE Difficulty: 1

38) FALSE Difficulty: 1

39) TRUE Difficulty: 1

40) TRUE Difficulty: 2

41) FALSE Difficulty: 1

42) FALSE Difficulty: 1

43) TRUE Difficulty: 1

44) FALSE Difficulty: 1

45) TRUE Difficulty: 1

46) FALSE Difficulty: 1

47) FALSE Difficulty: 1

48) TRUE Difficulty: 1

49) TRUE Difficulty: 1

- 50) first in, first out Difficulty: 1
- 51) keep hot foods hot and cold foods cold Difficulty: 1
- 52) listeria Difficulty: 1
- 53) mad cow disease Difficulty: 1
- 54) Norwalk virus Difficulty: 1
- 55) potentially hazardous Difficulty: 1
- 56) Hazardous Analysis Critical Control Points Difficulty: 1
- 57) cross-contamination Difficulty: 1
- 58) 4.5; 15; chlorine bleach Difficulty: 2
- 59) 4°C (40°F); 60 °C (140°F) Difficulty: 1
- 60) tubular; disks; corkscrews Difficulty: 2
- 61) toxin-mediated infection Difficulty: 2
- 62) aerobes; anaerobes Difficulty: 1
- 63) -18°C (0°F) Difficulty: 1
- 64) 4 days; 74°C; 2 hours Difficulty: 1
- 65) E Difficulty: 2
- 66) F Difficulty: 2
- 67) C Difficulty: 1
- 68) A Difficulty: 2
- 69) D Difficulty: 1
- 70) B Difficulty: 1
- 71) H Difficulty: 2
- 72) G Difficulty: 1
- 73) J Difficulty: 1
- 74) I Difficulty: 1

- 75) It is the transfer of biological, chemical, and physical contaminants. Difficulty: 1
- 76) They are thorough hand washing and the washing and sanitizing of all objects involved in the food processing, including cutting boards and knives. Difficulty: 2
- 77) They are cooling, storing, and reheating the cooked stock. Difficulty: 2
- 78) Answers will vary but should include any personal safety guidelines listed in the section entitled "Personal Safety" starting on p 34. Difficulty: 3
- 79) They need food, comfortable temperature, moisture, proper pH, proper atmosphere, and time. Difficulty: 2