



# Food Science Career Development Event

## 2024 GENERAL KNOWLEDGE EXAM

1. Which of the following prompted the discipline of food science to emerge?
  - a. Cross-contamination in home kitchens caused foodborne illness
  - b. The USDA declared the need for food science
  - c. Food preparation transitioned from the home to a factory because of technology advancements
  - d. None of the above
2. Which of the following is required to calibrate an alcohol thermometer?
  - a. Ice water
  - b. Boiling water
  - c. 70% ethanol
  - d. A&B
3. What is/are the best food vehicle(s) for delivering Vitamin E as a fortificant?
  - a. Orange juice
  - b. Fats and oils
  - c. Milk and dairy products
  - d. Cereal
4. Why is the milk that is used for yogurt production heated?
  - a. Killing undesirable bacteria
  - b. Denatures proteins
  - c. Contributes to thick texture
  - d. All of the above
5. What is an advantage of concentrated foods?
  - a. Shipping and packaging cost savings
  - b. Customers can dilute the product to their taste preferences
  - c. Less water is required, so these products are more sustainable for the environment
  - d. These products have a more intense color, which is desirable to consumers

6. What is freezer burn?
  - a. Undesired sublimation of frozen foods
  - b. Desired sublimation of frozen foods
  - c. Undesired freezing that only occurs in a blast freezer
  - d. None of the above
7. In comparison to proteins and carbohydrates, fats provide \_\_\_\_\_ as many calories.
  - a. 2x
  - b. 3x
  - c. 4x
  - d. 5x
8. What is another name for glucose?
  - a. Fructose
  - b. Sucrose
  - c. Dextrose
  - d. Aspartame
9. Which of the following is not true about water?
  - a. Contains one oxygen atom
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10. Eggs have carbon dioxide that escapes through the porous shell during storage. What happens to pH of the egg as carbon dioxide escapes?
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11. Excess consumption of which of the following may cause diarrhea?
  - a. Glycerol
  - b. Mannitol
  - c. Sorbitol
  - d. All of the above

12. Caffeine reaches maximum effects \_\_\_\_\_ minutes after consumption.
  - a. 15 to 45
  - b. 30 to 60
  - c. 60 to 90
  - d. 90 to 120
13. Which of the following are used to produce wine?
  - a. Honey
  - b. Dandelions
  - c. Grapes
  - d. All of the above
14. According to Centers for Disease Control and Prevention estimates, about \_\_\_\_\_ of salmonellosis outbreaks involve eggs?
  - a. 25%
  - b. 50%
  - c. 75%
  - d. 85%
15. Which of the following viruses have been associated with foodborne illness?
  - a. Rotavirus
  - b. Norovirus (also known as Norwalk)
  - c. Hepatitis A
  - d. All of the above
16. Which ingredient in soft drinks is an effective meat tenderizer?
  - a. Carbon dioxide
  - b. Phosphoric acid
  - c. Sodium benzoate
  - d. Sweeteners
17. Acrylamides are a by-product of \_\_\_\_\_.
  - a. Baking
  - b. Cooking
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  - d. All of the above

18. What causes taste bias?
  - a. Negative experiences that lead a person to disliking a food
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19. What can lead to systematic error?
  - a. Too many variables
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  - c. A&B
  - d. None of the above
20. Why is sodium dioxide or potassium metabisulfite added to wine?
  - a. Prevent unwanted growth of organisms
  - b. Stabilize color
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  - d. None of the above
21. Which of the following is a liquid-in-liquid solution?
  - a. Carbon dioxide in water
  - b. Alcohol in water
  - c. Sugar in water
  - d. All of the above
22. When should a marketing campaign be prepared for a new food product?
  - a. During idea conception
  - b. During initial formulation and development
  - c. Before sensory testing begins
  - d. Simultaneously with preparing to manufacture the product
23. Isoflavones are present in which of the following foods?
  - a. Soy products
  - b. Chickpeas
  - c. Licorice
  - d. All of the above

24. Riboflavin is a natural coloring agent that provides a \_\_\_\_\_ color.
- a. Yellow-red
  - b. Yellow
  - c. Red-orange
  - d. Orange
25. High-dose irradiation has been recommended for \_\_\_\_\_.
- a. Spices
  - b. Leafy greens
  - c. Fresh ground beef
  - d. None of the above
26. Pure lactic acid is produced from \_\_\_\_\_.
- a. Yogurt
  - b. Whey
  - c. Casein
  - d. Sour cream
27. In the metric system, the prefix hecto means \_\_\_\_\_.
- a. One
  - b. Ten
  - c. Hundred
  - d. Thousand
28. On the Celsius scale (°C), which of the following would be considered room temperature?
- a. 4
  - b. 11
  - c. 21
  - d. 30
29. Sources of modified starches most commonly include \_\_\_\_\_.
- a. Wheat
  - b. Corn
  - c. Soy
  - d. All of the above

30. In an enzymatic reaction, what is the substrate?
- a. Coenzyme necessary for the reaction to proceed
  - b. Location where the enzyme acts
  - c. Energy needed to start the reaction
  - d. None of the above
31. Gelatin is a \_\_\_\_\_.
- a. Protein
  - b. Carbohydrate
  - c. Lipid
  - d. Artificial sweetener
32. What is another name for tocopherol?
- a. Vitamin A
  - b. Vitamin B
  - c. Vitamin D
  - d. Vitamin E
33. What is the preferred water activity ( $a_w$ ) for most yeasts?
- a. 0.83 – 0.96
  - b. 0.90 – 0.91
  - c. 0.87 – 0.94
  - d. 0.70 – 0.80
34. What is the preferred pH range for most molds to grow?
- a. 6.5 – 7.5
  - b. 4.0 – 6.5
  - c. 4.0 – 6.8
  - d. 2.9 – 6.0
35. Water activity is a measure of the \_\_\_\_\_ to support chemical and biological reactions.
- a. Free water available
  - b. Bound water unavailable
  - c. Amount of water added to a food that is available
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36. What is the maximum FDA-approved irradiation dose for spices and seasonings?
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37. When combining vinegar and baking soda, the fizz that forms is \_\_\_\_\_.
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  - b. The result of carbon dioxide physically separating from water
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40. What is sucralose?
- a. Sugar substitute that is manufactured through the addition of chlorine atoms to sugar
  - b. A natural extract from a plant leaf
  - c. A sweet alcohol
  - d. The common name for aspartame

41. What is the recommended storage time (shelf life) of ice cream?
- a. 1 month
  - b. 2 months
  - c. 6 months
  - d. 9 months
42. In the United States, organic foods must meet requirements of the \_\_\_\_\_ in order to be labeled organic.
- a. FDA Organic Program
  - b. USDA Organic Program
  - c. National Organic Program
  - d. United States Organic Foods Program
43. Chemical leavening agents cause an acid-base reaction that leads to the formation of \_\_\_\_\_.
- a. Carbon dioxide
  - b. Water
  - c. Salt
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44. Which of the following teas has the largest caffeine content?
- a. White
  - b. Green
  - c. Black
  - d. They all have the same caffeine content
45. During cooking, the reaction that occurs between carbohydrates and proteins that causes the food to turn brown is called \_\_\_\_\_.
- a. Acrylamide
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  - c. Maillard
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46. \_\_\_\_\_ are responsible for the characteristic texture of gummy bears.
- a. Carbohydrate gums
  - b. Pectins
  - c. Gelatinized starches
  - d. None of the above



47. Bottled water is regulated by the \_\_\_\_\_.  
a. Environmental Protection Agency  
b. Food and Drug Administration  
c. United States Department of Agriculture  
d. Centers for Disease Control and Prevention
48. Which type of sensory panel is most used during the development of a food product?  
a. Consumer taste panelists  
b. Robotic and electronic sensory testing  
c. Trained taste panelists  
d. B&C
49. Which of the following laws was passed in 1906?  
a. Pure Food and Drug Act  
b. Food, Drug, and Cosmetic Act  
c. Meat Inspection Act  
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50. What pH is needed for *Clostridium botulinum* to grow?  
a. 4.0 – 4.2  
b. 4.2 – 4.4  
c. 4.4 – 4.6  
d. 4.6 or greater

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