



# FOOD SCIENCE CAREER DEVELOPMENT EVENT

## 2023 GENERAL KNOWLEDGE EXAM

1. Which of the following is NOT a function that water serves in the body?
  - a. Improving the quality of sleep
  - b. Transportation of nutrients
  - c. Reactant in metabolism
  - d. Maintaining body temperature
  
2. Which of the following best defines fatty acid?
  - a. Inorganic molecules that consist of a carbon chain with a carboxyl group at one end
  - b. Inorganic molecules that consist of a carbon chain with a triglyceride at one end
  - c. Organic molecules that consist of a carbon chain with a carboxyl group at one end
  - d. Organic molecules that consist of a carbon chain with a triglyceride at one end
  
3. Which of the following best defines margin of safety for an additive?
  - a. Zone between the concentration in which an additive is normally used and the level at which a hazard exists
  - b. Zone between no use (0% concentration) and the concentration at which an additive is normally used
  - c. The concentration at which an additive is normally used with an acceptable error of  $\pm 5\%$
  - d. None of the above
  
4. Microorganisms and \_\_\_\_\_ often work together to cause food spoilage.
  - a. people
  - b. animals
  - c. enzymes
  - d. All of the above

5. Why are three-digit codes used to label products during sensory evaluation?
  - a. Allows for enough unique numbers to be available when doing a sensory study with a large number of samples
  - b. Reduces bias because panelists are more likely to select 1 over 3 or A instead of B or C
  - c. This is a requirement by the Food and Drug Administration
  - d. None of the above
6. Hydroponic crops are grown with their roots suspended \_\_\_\_\_.
  - a. in a system that maintains moisture at a concentration of 50% soil and 50% water
  - b. in distilled water
  - c. in municipal tap water
  - d. in a liquid nutrient solution
7. Which of the following a technique to separate foods based upon density?
  - a. Centrifugal force
  - b. Sedimentation
  - c. Pressure
  - d. Chemicals
8. What is the overarching goal that MyPlate.gov, the Physical Activity Guidelines, and the Dietary Guidelines aim to achieve?
  - a. More physical activity
  - b. Fewer calories consumed per day
  - c. Energy balance
  - d. More sleep
9. If eggs are cooked too long, \_\_\_\_\_ will develop, and the result will be a green ring around the egg yolk.
  - a. Iron sulfide
  - b. Hydrogen sulfide
  - c. Iron disulfide
  - d. Hydrogen disulfide

10. Cellulose is indigestible and composed of \_\_\_\_\_.
- a. beta-fructose
  - b. beta-sucrose
  - c. beta-lactose
  - d. beta-glucose
11. Which of the following best describes cultivated meat?
- a. Laboratories are used to reproduce animal flesh in bioreactors to produce a product that is characteristic of natural meat
  - b. Laboratories are used to produce a product that resembles meat using ingredients that are not of an animal origin
  - c. Processing plants are used to produce a product that resembles meat using ingredients that are not of an animal origin
  - d. Processing plants are used to produce a product that resembles meat but is made entirely of vegan materials
12. Foams can be described as \_\_\_\_\_, surrounded by a \_\_\_\_\_ film.
- a. bubbles of air, lipid
  - b. bubbles of air, protein
  - c. proteins, carbohydrate
  - d. proteins, lipid
13. Which of the following is NOT a function of acids and bases?
- a. Food preservation
  - b. Cheese production
  - c. Protein source
  - d. Aid in digestion
14. High-dose irradiation can be defined as levels of radiation of \_\_\_\_\_ kgray or higher.
- a. 10
  - b. 15
  - c. 20
  - d. 25

15. A soft drink is a(n) \_\_\_\_\_ solution.
- a. oxygen-in-water
  - b. carbon dioxide-in-water
  - c. sugar with oxygen-in-water
  - d. sugar with carbon dioxide-in-water
16. Which of the following are methods used in descriptive research?
- a. Surveys
  - b. Interviews
  - c. Observations
  - d. All of the above are descriptive research methods
17. Which of the following is NOT true about molds?
- a. Almost all molds should be considered a health hazard
  - b. Bacteria and yeast are less hardy than molds
  - c. Molds spoil foods
  - d. Mold growth can occur over a wide pH range
18. Which of the following is NOT one of the 7 principles of the Hazard Analysis and Critical Control Point program?
- a. Establish critical limits
  - b. Establish corrective actions
  - c. Establish regulatory relationships
  - d. Establish record-keeping and documentation procedures
19. Which of the following is recognized as the leading body for setting international food standards with the goal of protecting consumer health ensuring fair food trade practices?
- a. United States Department of Agriculture
  - b. Food and Drug Administration
  - c. Codex Alimentarius
  - d. All of the above

20. Which pathogen is often implicated in infant formula recalls?
- a. *Clostridium botulinum*
  - b. *Cronobacter sakazakii*
  - c. *Campylobacter jejuni*
  - d. None of the above
21. Which of the following best describes the research term meta-analysis?
- a. A sensory study that has 1,000 or more research participants
  - b. A research study that is conducted by the USDA or FDA in conjunction with a university
  - c. A research study conducted by 5 or university researchers
  - d. Drawing overall conclusions by pooling results from several individual research studies
22. When water leaks from a gel over time, this is known as \_\_\_\_\_.
- a. Syneresis
  - b. Dehydration
  - c. Stability
  - d. Gelatinization
23. Why does a dressing that consists of vinegar and oil separate?
- a. Fat molecules in the vinegar are nonpolar and the oil molecules are polar
  - b. Fat molecules in the oil are polar and vinegar molecules are nonpolar
  - c. Fat molecules in oil are nonpolar and vinegar molecules are polar
  - d. Fat molecules in the vinegar are polar and the oil molecules are nonpolar
24. \_\_\_\_\_ is the energy required for a reaction to begin and \_\_\_\_\_ reduce the amount of energy required for a reaction to begin.
- a. Active energy, enzymes
  - b. Activation energy, enzymes
  - c. Active energy, substrate
  - d. Activation energy, substrate

25. Which of the following best defines the term bioavailability?
- a. Ability of the body to absorb a nutrient and convert it to a form that can be used by the body
  - b. Degradation of a nutrient that is not needed in the body to prevent excess accumulation of nutrients
  - c. Ability of the body to absorb and use a nutrient in the form it was consumed
  - d. None of the above
26. Why is slow freezing and the development of large ice crystals an issue in food products?
- a. Rupture cell walls of animal and plant tissues
  - b. Create a crunchy, undesirable eating experience
  - c. Large ice crystals may damage a consumer's mouth while eating
  - d. All of the above
27. Dehydrofreezing is also known as \_\_\_\_\_.
- a. lyophilization
  - b. dehydration
  - c. rehydration
  - d. concentration
28. The proportion of flour to liquid is lower in \_\_\_\_\_ than in \_\_\_\_\_.
- a. doughs, batters
  - b. batters, doughs
  - c. foams, batters
  - d. foams, doughs
29. Which of the following contribute the most kilocalories per gram of nuts?
- a. Carbohydrates
  - b. Proteins
  - c. Fats
  - d. Proteins, fats, and carbohydrates contribute equal kilocalories

30. Which of the following is NOT a phenolic acid?
- a. Ellagic acid
  - b. Vanillin
  - c. Thymol
  - d. All of the above are phenolic acids
31. Coliforms present in a food product indicate the possible presence of \_\_\_\_\_.
- a. pathogenic microorganisms
  - b. chemical contaminants
  - c. physical hazards
  - d. a & b
32. Which of the following is NOT one of the “4 Cs of Food Safety”?
- a. Change
  - b. Clean
  - c. Cook
  - d. Chill
33. Which of the following can viscosity influence in a food?
- a. Texture of a food
  - b. Desirability of a food
  - c. Effectiveness of a cooking oil
  - d. All of the above
34. What policy did the USDA implement in December of 2012 with the goal of significantly reducing consumer exposure to unsafe meat products?
- a. Chill and Test
  - b. Chill and Ship
  - c. Test and Ship
  - d. Test and Hold
35. Which of the following USDA Recall Classifications represents “high or medium risk”?
- a. Class I
  - b. Class II
  - c. Class III
  - d. Class IV

36. Which of the following is a component of the FDA's New Era of Smarter Food Safety blueprint?

- a. Green Energy
- b. Cultivated Meats
- c. Tech-Enabled Traceability
- d. Genetic Engineering

37. Which of the following is the most recent edition of the FDA Food Code?

- a. 2023 Food Code
- b. 2022 Food Code
- c. 2017 Food Code
- d. 2013 Food Code

38. What is the definition of a compound?

- a. Substance that contains two or more elements that are chemically combined
- b. Substance that contains three or more elements that are chemically combined
- c. Pharmaceutical term that relates to the combining of ingredients to generate a pharmaceutical product
- d. None of the above

39. Which of the following is another term for condensation?

- a. Sublimation
- b. Vaporization
- c. Fusion
- d. None of the above

40. The enzyme \_\_\_\_\_ breaks lactose down into \_\_\_\_\_.

- a. Glucose, glucose and galactose
- b. Lactase, glucose and galactose
- c. Glucose, sucrose and galactose
- d. Lactase, sucrose and galactose

41. Aspartame is comprised of which two amino acids?
- a. Lysine and phenylalanine
  - b. Asparagine and phenylalanine
  - c. Aspartic acid and phenylalanine
  - d. Alanine and phenylalanine
42. Which of the following is NOT true about caffeine?
- a. A moderate dose of caffeine is considered to be 300-400 mg per day
  - b. Classified as a mild stimulant
  - c. Considered Generally Recognized as Safe (GRAS)
  - d. Added to many foods and beverages
43. When anaerobic bacteria digest cow manure, \_\_\_\_\_ is produced, which can be captured and burned in generators to produce energy and decrease \_\_\_\_\_.
- a. methane, greenhouse gas emissions
  - b. methane, smell
  - c. carbon dioxide, greenhouse gas emissions
  - d. carbon dioxide, smell
44. Which of the following is considered the main source for the foodborne pathogen *Staphylococcus aureus*?
- a. Cattle
  - b. Pigs
  - c. Chickens
  - d. Humans
45. What gas is often reduced in modified atmosphere packaging (MAP)?
- a. Oxygen
  - b. Carbon dioxide
  - c. Nitrogen
  - d. Carbon monoxide

46. The membrane in eggs that separates the egg white from the shell is similar in structure to a(n) \_\_\_\_\_.
- a. cytoplasmic membrane
  - b. cell wall
  - c. mucous membrane
  - d. biofilm
47. Fresh apple shelf life can be extended by suppressing their natural production of \_\_\_\_\_.
- a. glucose
  - b. methane
  - c. ethylene
  - d. carbon dioxide
48. Which of the following is NOT associated with rancidity?
- a. Unpleasant flavor for the consumer
  - b. Unpleasant odor for the consumer
  - c. Auto-oxidation of the product
  - d. Short-term health risks are a concern if a rancid product is consumed
49. What is collagen?
- a. A protein found in muscle tissue
  - b. A protein found in connective tissue
  - c. A lipid found in muscle tissue
  - d. A lipid found in connective tissue
50. Which of the following is a benefit of food additives?
- a. Reduced risk of foodborne illness
  - b. Reduced waste due to spoilage
  - c. Reduced amount of time required to prepare food
  - d. All of the above