



Food Science Career Development Event

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GENERAL KNOWLEDGE EXAM

Choose the correct answer and place it in Exam A of the Universal E scantron provided.

1. Cell cultured food products derived from cell lines of livestock and poultry are a new technology under development. Who will provide regulatory oversight for these novel human food products?
 - a. Only FDA
 - b. Only USDA FSIS
 - c. Joint oversight by FDA and USDA FSIS
 - d. No regulatory oversight has been determined at this time
2. As a banana ripens from green to yellow, it _____.
 - a. becomes sweeter due to an increase in its sugar content
 - b. does not change in bitterness
 - c. becomes more bitter
 - d. has no change in sweetness or sugar content
3. You have been asked to develop a new salad dressing. One of the specifications is to use an oil with a low saturated fat content. Given the choices below, which would have the lowest saturated fat content?
 - a. Coconut oil
 - b. Peanut oil
 - c. Canola oil
 - d. Olive oil
4. Aspergillus produces _____ that are used to clarify fruit juices.
 - a. amylases
 - b. cellulases
 - c. sucrases
 - d. invertases
5. _____ is the creation and maintenance of hygienic and healthful conditions.
 - a. Cleanliness
 - b. Sterilization
 - c. Sanitation
 - d. Disinfection

6. A chocolate truffle and mint ice cream sandwich has the following ingredient statement: *Chocolate truffle cookies (bittersweet chocolate [cocoa mass, sugar, cocoa butter, vanilla flavoring], butter [cream, natural flavoring], cane sugar, eggs, dark chocolate chips [cocoa liquor, sugar, cocoa butter, pure vanilla], unbleached flour [enriched wheat flour, niacin, reduced iron, thiamine mononitrate, riboflavin, folic acid], cocoa powder, Madagascar bourbon vanilla extract [water, alcohol, sugar, vanilla bean extractives], sea salt, baking soda), mint ice cream (milk, cream, cane sugar, tapioca syrup, mint, peppermint essential oil, tapioca starch)*. What allergens must be declared in this product?
- chocolate, milk, wheat
 - wheat, tapioca, milk
 - chocolate, eggs, wheat
 - milk, eggs, wheat
7. Fresh olives picked from a tree contain a _____ compound requiring them to be cured to make them palatable.
- sour
 - sweet
 - bitter
 - salty
8. The food industry uses four levels of heat preservation. Which of the following provides complete destruction of all microorganisms?
- Commercial sterilization
 - Pasteurization
 - Sterilization
 - Blanching
9. The red color of an apple is important for consumer acceptance of red delicious apples so companies that produces apples use a _____ to measure redness, blueness, and yellowness of each apple lot.
- refractometer
 - colorimeter
 - gas chromatograph
 - torrymeter
10. _____ is a common method used to test the viscosity of mixtures such as ketchup.
- The line-spread test
 - TBARS
 - Spectrophotometry
 - Gel electrophoresis

11. The space left in a container after adding food and sealing the top is called _____.
a. voided space
b. headspace
c. open space
d. dead space
12. Food contact packaging materials are regulated by the _____.
a. FDA
b. USDA
c. EPA
d. Federal Trade Commission
13. Food is placed on heated trays or shelves called _____ when vacuum drying procedures are used.
a. rollers
b. platens
c. platforms
d. racks
14. _____ is a compound commonly used to make no-salt seasonings because it contributes a salty flavor to foods.
a. Lithium chloride
b. Selenium chloride
c. Potassium chloride
d. Manganese chloride
15. _____ is National Food Safety Education month.
a. February
b. May
c. July
d. September
16. To extend the shelf life of chips and help prevent crushing during distribution, _____ is added to the bag during packaging.
a. oxygen
b. nitrogen
c. hydrogen
d. helium

17. As a popcorn kernel is heated, water within the kernel boils forming steam. The _____ to explode.
- higher temperature of the steam causes the kernel
 - starches within the kernel cause the kernel
 - volume of the steam is greater than water increasing pressure within the kernel causing it
 - proteins within the kernel causes the kernel
18. _____ is used to dye gourmet pastas black.
- Ferrous gluconate
 - Squid ink
 - Saffron
 - Aniline
19. Concentrates in the form of soups, syrups and juices are produced by many companies. Which of the following statements is NOT true about concentrates?
- They are more economical to ship due to water reduction in product
 - Proteins denaturation due to concentrated salts and minerals can cause the concentrate to slowly gel over time during storage
 - Concentrates have cooked flavors and color changes
 - Concentrates do not form gritty or sandy textures in sugary foods due to less formation of sugar crystals
20. _____ are unstable flavor compounds formed when plant tissues are disrupted such as in chopped onions and garlic.
- Tannins
 - Allyl sulfides
 - Terpenes
 - Saponins
21. The addition of sodium phosphate into a meat product to retain moisture and protect flavor is an example of a(n) _____.
- indirect food additive
 - color additive
 - direct food additive
 - flavor additive

22. Cheese curds form when globular casein molecules untangle, allowing _____ to bind with milkfat and one another.
- a. nonpolar side chains
 - b. polar side chains
 - c. hydrophilic proteins
 - d. water attracting molecules
23. Ingestion of _____ and causing illness is considered a food infection.
- a. *Bacillus cereus* (emetic-type)
 - b. *Salmonella*
 - c. *Clostridium botulinum*
 - d. *Staphylococcus aureus*
24. When a solute such as salt or sugar is added to water, the _____.
- a. freezing point increases and the boiling point decreases
 - b. freezing point and boiling point increases
 - c. freezing point decreases and the boiling point increases
 - d. freezing point and boiling point decreases
25. A food scientist working on product development is testing a new formulation. Before measuring restricted ingredients in the pilot lab, the scientist needs to _____ the weighing scale using a standard mass.
- a. calibrate
 - b. level
 - c. regulate
 - d. quantify
26. A poultry company plans on selling fresh poultry. According to USDA FSIS, whole poultry and cuts can never be below _____ to be labeled as “fresh”.
- a. 0.6°C
 - b. 0°C
 - c. -3.3°C
 - d. -17.8°C
27. Freezing _____ enzymatic activity in a food product.
- a. slows
 - b. stops
 - c. deactivates
 - d. has no effect on

28. Which of the following sugars is considered to be sweeter than sucrose?
- a. Glucose
 - b. Sorbitol
 - c. Maltose
 - d. Fructose
29. Eggs marketed as “cage free eggs” are from chickens raised _____.
- a. in pens or cages
 - b. inside poultry houses without cages
 - c. inside poultry houses with access to the outside
 - d. with organic feed
30. The chemical leavening agent baking soda works because it contains ____.
- a. a strong acid
 - b. a strong base
 - c. carbon dioxide
 - d. sodium chloride
31. Manufacturers who use _____ (a source of phenylalanine) as a nonnutritive sweetener must include a warning label to inform consumers having a rare hereditary disease known as phenylketonuria.
- a. Aspartame
 - b. Acesulfame potassium
 - c. Stevioside
 - d. Sucralose
32. In the context of food allergens, _____ occurs when a residue or trace amount of an allergenic food become incorporated into another food not intended to contain it according to the FDA.
- a. infection
 - b. cross-contact
 - c. tainting
 - d. tampering
33. One important advantage to using glass as food packaging material is that it is _____.
- a. very strong and resilient
 - b. economical to ship
 - c. chemically inert
 - d. protective of food color stability

34. The acronym IPM is used by the food industry to mean _____ as part of a cleaning and sanitation program.
- a. integrated pest management
 - b. intelligent power management
 - c. interior points method
 - d. industrial preparedness measures
35. Lecithin is commonly added to hot cocoa mix to _____.
- a. improve the shelf life of the mix
 - b. serve as emulsifier when water is added to cocoa
 - c. maintain the color stability of the mix
 - d. maintain the flavor stability of the mix
36. Canned tuna in oil takes longer to process than canned tuna in water. What is the reasoning behind this?
- a. Fat is a better conductor of heat than water
 - b. Water has no influence on conduction in this process
 - c. Water is a better conductor of heat than fat
 - d. Fat has no influence on conduction in this process
37. During freezing of ice cream, the mix is aerated by revolving blades in the freezer to _____.
- a. prevent overrun in the product
 - b. incorporate large air cells to make the ice cream texture smoother
 - c. break down milk fat into smaller particles so the ice cream is creamy
 - d. incorporate small air cells to prevent ice cream from becoming a solid mass of frozen ingredients
38. During the production of wine, yeast is separated from the wine in a step called _____.
- a. maceration
 - b. centrifugation
 - c. tanking
 - d. racking
39. When wheat is processed into flour, a loss of some nutrients occurs. To counteract this, companies are required to enrich flour with which of the following nutrients?
- a. Niacin, thiamin, riboflavin, folic acid and iron
 - b. Niacin, thiamin, riboflavin and iron
 - c. Niacin, thiamin, riboflavin and folic acid
 - d. Niacin, thiamin and folic acid

40. A safe handling label must be present on all packages of meat that are sold _____.
a. fully cooked and ready to reheat
b. not ready to eat
c. ready to eat
d. fully cooked and ready to reconstitute
41. Lean beef has a _____ than asparagus so less energy is required to reduce the temperature of beef than asparagus.
a. higher specific heat
b. higher dew point
c. lower specific heat
d. lower dew point
42. To produce decaffeinated coffee, green coffee beans are soaked in water producing a solution saturated with caffeine and flavor compounds. The solution is passed through _____ to remove the caffeine.
a. a carbon filter
b. a paper filter
c. an infrared filter
d. a UV filter
43. You are securing olive oil for a product formulation and need to know where the ingredient is produced. The country that produces the most olive oil is _____.
a. Greece
b. Italy
c. Spain
d. Tunisia
44. Benzene in water is considered _____ hazard.
a. a biological
b. a physical
c. a chemical
d. not to be a
45. Which of the following components is required to be displayed on the principal display panel?
a. Ingredient statement
b. Net quantity or amount
c. Company name and address
d. Major food allergens

46. *Clostridium botulinum* spores can germinate and grow at a ____.
- a. pH of ≤ 4.6 and in an aerobic environment
 - b. pH of ≥ 4.6 and in an anaerobic environment
 - c. pH of ≤ 4.6 and in an anaerobic environment
 - d. pH of ≥ 4.6 and in an aerobic environment
47. FDA is requiring food companies to update Nutrition Facts labels to reflect updated scientific findings. New labels must ____.
- a. include Vitamin E and Magnesium while Calcium and Iron are no longer required but may be listed voluntarily
 - b. include Vitamin D and Potassium while Vitamins A and C are no longer required but may be listed voluntarily
 - c. include Vitamin K and Selenium while Vitamin A and Calcium are no longer required but may be listed voluntarily
 - d. include Vitamin B12 and Zinc while Vitamin C and Iron are no longer required but may be listed voluntarily
48. During thermal processing, the last point in a can or mass of food to reach the desired temperature is called the ____.
- a. hot point
 - b. flash point
 - c. cold point
 - d. finish point
49. Your company moved its bread baking production facility from Minneapolis, MN (altitude 830 feet) to Denver, CO (altitude 5,280 feet). Which of the following adjustments should the company make to their formulation/process so they continue to produce the same quality product in their new location? Assume the company is making only one adjustment if one is made.
- a. Use less flour in the formulation
 - b. Use more water in the formulation
 - c. Increase the amount of yeast in the formulation
 - d. No change is needed
50. According to USDA FSIS, which of the following would not be considered a ratite?
- a. Rhea
 - b. Squab
 - c. Ostrich
 - d. Emu