

**FOOD SCIENCE AND TECHNOLOGY
CAREER DEVELOPMENT EVENT
2007 TEST**

1. A component in chili peppers called _____ makes them hot and may cause a burning sensation in your mouth when food containing chili peppers is consumed.
 - a. papain
 - b. chalaza
 - c. capsaicin**
 - d. tartrazine

2. A food scientist is developing a new product and needs to use a sugar that is not only the sweetest, but also the most soluble from an available list of sweeteners that they have in their product development lab. To meet these criteria, which one of the following sweeteners would you recommend that they use?
 - a. Maltose
 - b. Fructose**
 - c. Glucose
 - d. Sucrose

3. HACCP, a dynamic, preventative food safety concept has _____ principles.
 - a. 3
 - b. 5
 - c. 7**
 - d. 9

4. Less tender cuts of meat can be tenderized by using enzymes in _____ that are extracted from the papaya fruit.
 - a. papain**
 - b. ficin
 - c. bromelin
 - d. maltase

5. The government agency that has oversight for regulating the safety and quality of seafood is _____.
 - a. USDA
 - b. FDA**
 - c. CDC
 - d. EPA

6. _____ is a taste component that is best described as savory, pungent, deliciousness, or musty.
 - a. Bitter
 - b. Sour
 - c. Sweet
 - d. Umami**

7. Water activity is used to determine the _____.
- a. moisture content of food
 - b. amount of free water available for microorganisms to grow in a food product**
 - c. relative humidity surrounding a food product
 - d. water concentration in a food product
8. Harry's BBQ company processes their BBQ sauce at ambient temperature which is currently 68°F. This would be equivalent to ____ °C.
- a. 55.6
 - b. 154.4
 - c. 20**
 - d. 5.7
9. A solution containing more OH⁻ ions than H⁺ ions is considered to be _____ solution.
- a. an acidic
 - b. a neutral
 - c. a mixed
 - d. a basic**
10. Isoflavones are phytochemicals that have been shown to possibly help reduce the risk of some cancers. Isoflavones are found in products such as Silk®, a non dairy beverage, and are derived from _____.
- a. tomatoes
 - b. carrots
 - c. grapes
 - d. soy**
11. Oxidases are enzymes in vegetables that are inactivated by _____.
- a. blanching**
 - b. freezing
 - c. dehydration
 - d. refrigeration
12. Castleberry's Food Company initiated a voluntary recall of canned chili sauce and meat products due to the risk of a potent neurotoxin being present from under-processing the canned products. The organism, _____, is responsible for producing this toxin.
- a. *Staphylococcus aureus*
 - b. Clostridium botulinum**
 - c. *Clostridium perfringens*
 - d. *Listeria monocytogenes*
13. Oil floats above water in salad dressings because oil has a lower _____ than water.
- a. weight
 - b. mass
 - c. force
 - d. density**

14. Producing food by natural methods that fit with local needs and conditions is considered _____.

- a. organic production
- b. sustainable farming**
- c. integrated pest management
- d. biodiversity

15. Milk that has been first sterilized by heat, and then placed in sterilized containers for retail sale at ambient temperature has undergone _____.

- a. pasteurization
- b. pressure processing
- c. retort canning
- d. aseptic processing**

16. The D-value is the _____.

- a. length of time required at a specific temperature to destroy 90% of the microorganisms present**
- b. number of degrees F required for a specific thermal death time curve to pass through one log cycle, or 90 percent destruction
- c. number of minutes required to destroy a specific number of microbes at 250°F
- d. increase in death rate due to a 10°C increase in temperature

17. Potato chips are commonly sealed in packages flushed with pure nitrogen to minimize oxidation that would lead to unpleasant flavors, otherwise known as _____.

- a. rancidity**
- b. caramelization
- c. stabilization
- d. saturation

18. _____ is a vegetable gum added to evaporated milk before processing to stabilize the casein proteins.

- a. Terpene resin
- b. Chicle
- c. Carrageenin**
- d. Complexed maltodextrin/whey protein isolate

19. A complete protein is a protein that contains all the essential _____.

- a. carbohydrates
- b. amino acids**
- c. fatty acids
- d. triglycerides

20. Food components such as fat that do not dissolve in water are considered _____.

- a. insoluble**
- b. volatile
- c. indestructible
- d. miscible

21. Butter is a _____ food emulsion.
- a. oil-in-water
 - b. liquid-in-gas
 - c. water-in-oil**
 - d. gas-in-liquid
22. The mass percent of 15 g of salt (sodium chloride) in 85 g of water is equal to _____ percent.
- a. 17.6
 - b. 21.4
 - c. 4.7
 - d. 15**
23. Fermentation is a production step in the process of making _____.
- a. tomato soup
 - b. hot dogs
 - c. vanilla**
 - d. strawberry milk
24. _____ wheat is the type of wheat most commonly used to manufacture pasta.
- a. Club
 - b. Durum**
 - c. Common
 - d. Hard red
25. _____ is an acronym for a special list of additives that contains substances such as spices, natural seasonings, and flavorings that are considered safe for human consumption and not regulated as additives.
- a. CODEX
 - b. LOG
 - c. FAO
 - d. GRAS**
26. Three-quarters of the world's supply of cocoa comes from _____.
- a. Brazil
 - b. West Africa**
 - c. Indonesia
 - d. Ecuador
27. When you consume a cracker, the texture that you perceive is the result of several sensations including consistency, mouthfeel and _____.
- a. sound**
 - b. aroma
 - c. flavor
 - d. color

28. To keep fresh produce from deteriorating during distribution and retail display, produce are often _____.
- a. artificially colored so they look better during display
 - b. treated with a light coat of approved oil-based wax to seal in moisture**
 - c. stored at ambient temperature
 - d. stored in anaerobic packaging
29. The lean part of meat is about _____ percent protein.
- a. 15-20**
 - b. 25-35
 - c. 40-50
 - d. 55-60
30. A microorganism that causes a food borne illness is called a _____.
- a. spoilage organism
 - b. pathogen**
 - c. spore
 - d. vegetative cell
31. _____ is caused by moisture loss from a ham that is exposed to air during frozen storage, possibly as a result of loose packaging.
- a. Dehydrofreezing
 - b. Lyophilization
 - c. Freezer burn**
 - d. Retrogradation
32. _____ is a required component that must be included on a Nutrition Facts panel found on most food products.
- a. Omega 3 fatty acids
 - b. Saturated fat**
 - c. Potassium
 - d. Vitamin E
33. In 1810, a Englishman named _____ patented the tin canister, or can, which became the most popular container for food preservation through canning.
- a. Alexander Kerr
 - b. John Mason
 - c. Nicolas Appert
 - d. Peter Durand**
34. _____ is the form of carbohydrates found in meat.
- a. Glucose
 - b. Cellulose
 - c. Glycogen**
 - d. Starch

35. Irradiation can be used as a food preservation method called _____. Food is first blanched, and then subjected to high levels of radiation to kill all forms of microorganisms, resulting in shelf life of several years.
- a. the radura technique
 - b. gamma ray pasteurization
 - c. radiation pasteurization
 - d. radiation sterilization**
36. The yeast used in making bread products is _____.
- a. *Saccharomyces cerevisiae***
 - b. *Lactobacillus plantarum*
 - c. *Pediococcus cerevisiae*
 - d. *Lactobacillus acidophilus*
37. Most starches found in food contain _____ in differing proportions.
- a. glucose and glycogen
 - b. amylose and amylopectin**
 - c. cellulose and hemicellulose
 - d. maltose and maltodextrin
38. Sodium _____ is an ingredient used to impart a unique flavor and pink color to cured meat products.
- a. citrate
 - b. benzoate
 - c. nitrite**
 - d. nitrate
39. When glucose and oxygen react with each other, the resulting products are _____.
- a. water and hydrogen gas
 - b. hydrogen gas and carbon dioxide
 - c. carbon dioxide and water**
 - d. water, hydrogen gas, and carbon dioxide
40. Trans fat is made when _____ is added to vegetable oil in a process called hydrogenation.
- a. hydrogen**
 - b. oxygen
 - c. nitrogen
 - d. sodium
41. When pancakes are cooked on a griddle, the griddle transfers heat to the pancake batter by _____.
- a. conduction**
 - b. convection
 - c. radiation
 - d. electromagnetic waves

42. When a summer sausage is thermally processed in a smokehouse that has excessive air speed and/or too little humidity, the sausage may form a hard outer layer, trapping moisture inside which could lead to subsequent microbial problems. This is called _____.
- a. dehydration
 - b. case hardening**
 - c. blanching
 - d. rehydration
43. Food scientists continually conduct experiments to test processing conditions. In an experiment for a whipped cream company, a scientist tested whipping the cream in a metal or plastic vat to determine which was best for whipping cream. For this experiment, the bowl material would be considered a _____.
- a. inductive variable
 - b. dependent variable
 - c. independent variable**
 - d. deductive variable
44. The first ingredient in the ingredient statement on the can of Mountain Dew soda is listed as “carbonated water.” This is actually a solution of the gas _____ dissolved in water.
- a. hydrogen
 - b. nitrogen
 - c. oxygen
 - d. carbon dioxide**
45. The viscosity of ketchup is a measure of its _____.
- a. resistance to flow**
 - b. mass per unit volume
 - c. specific gravity
 - d. ability to dissolve in another substance
46. _____ is formed when the myoglobin in meat becomes oxidized and turns brownish in color.
- a. Oxymyoglobin
 - b. Metmyoglobin**
 - c. Deoxymyoglobin
 - d. Nitrosometmyoglobin
47. Cream is classified according to the amount of fat it contains. Light whipping cream must contain _____ percent fat.
- a. 10.5-18
 - b. 18-30
 - c. 30-36**
 - d. 36 or more

48. Oscar Mayer markets a product called “Fast Franks” that is a microwavable hot dog in a bun. One serving, equivalent to 1 hot dog with bun, contains 19 grams of fat, 5 grams of saturated fat, 45 mg of cholesterol, 790 mg of sodium, 21 g of carbohydrates, 1 gram of dietary fiber, 5 grams of sugar, and 10 grams of protein. One serving would be equivalent to _____ calories.

- a. 364
- b. 295**
- c. 305
- d. 250

49. Quaker® Oats is an example of a company that was permitted by the FDA to place a food-specific health claim on Quaker® Oatmeal because research studies suggested that _____ may lower blood cholesterol slightly.

- a. protein
- b. fiber**
- c. trans fatty acids
- d. soluble sucrose

50. Oil and water are two immiscible liquids found in salad dressings that can be blended together with the addition of a _____.

- a. thickener
- b. emulsifier**
- c. stabilizer
- d. catalyst