

National FFA Career Development Event

Food Science and Technology 2013 TEST

1. _____ molecules can greatly inhibit protein molecules from bonding with each other and with water, leading to the reduction of foam's volume and stability.
 - A. Glucose
 - B. Carbohydrate
 - C. Fat
 - D. Fructose
2. Anthocyanins will create _____ colors in certain foods.
 - A. green and red
 - B. red and blue
 - C. purple and brown
 - D. yellow and red
3. Cola is an example of a(n) _____.
 - A. element
 - B. compound
 - C. heterogeneous mixture
 - D. homogeneous mixture
4. Potassium sorbate is a common food additive that functions as a(n) _____.
 - A. mold inhibitor
 - B. stabilizer
 - C. anticaking agent
 - D. rancidity deterrent
5. _____ is a polar covalent compound commonly referred to as the universal solvent.
 - A. Vinegar
 - B. Water
 - C. Ethyl Alcohol
 - D. Oil
6. This essential nutrient provides the body with its most concentrated source of energy.
 - A. Vitamins
 - B. Carbohydrates
 - C. Proteins
 - D. Fats
7. _____ is needed to metabolize protein and for tissue repair. It can be found in broccoli, beef liver and asparagus.
 - A. Riboflavin
 - B. Biotin
 - C. Niacin
 - D. Thiamin
8. _____ are commonly used to break down protein in the production of cocoa and chocolate for candy and other products.
 - A. Lactic-acid bacteria
 - B. Carbon-dioxide bacteria
 - C. Acetic-acid bacteria
 - D. Proteolytic bacteria
9. Fats serve many functions in foods. While many of its functions are desired, _____ is one function that is not desired.
 - A. emulsification
 - B. tenderizing
 - C. oxidation
 - D. flavor
10. _____ is a flavor enhancer that some processors are removing from products to create a clean ingredient statement. While it is an FDA approved ingredient, it also occurs naturally in some foods like mushrooms.
 - A. MSG
 - B. Sugar
 - C. Trans fat
 - D. High fructose corn syrup
11. _____ has a complicated production process involving fermentation and roasting resulting in production of more than 300 chemical compounds.
 - A. Wine
 - B. Chocolate
 - C. Beer
 - D. Tea

12. Canning of foods is a common process that can safely preserve foods. If canning is done improperly, _____ can grow and produce a deadly neurotoxin.
- Listeria monocytogenes*
 - Clostridium botulinum*
 - Escherichia coli* O157:H7
 - Yersinia pestis*
13. _____ denatures enzymes that cause milk to spoil.
- Homogenization
 - Pasteurization
 - Fortification
 - Emulsification
14. Food scientists commonly use the metric system when developing products. In a 10 pound product test batch, 3.17 oz of salt is used. How much salt would be used in grams?
- 0.11 g
 - 6.9 g
 - 50.7 g
 - 89.9 g
15. A food scientist is conducting an experiment and measuring a volume of a liquid in a buret. The volume of liquid is read from the _____.
- meitnerium
 - mendelevium
 - meniscus
 - mendotium
16. A solution that contains less solute than can be dissolved in it at a given temperature is called a(n) _____ solution.
- unsaturated
 - saturated
 - supersaturated
 - hypersaturated
17. _____ is a digestive enzyme is found in salvia, and reacts with carbohydrates in food to initiate breakdown into simpler sugars.
- Lactase
 - Lipase
 - Catalase
 - Amylase
18. Integrated Pest Management in a food production area focuses on controlling pests with _____ deterrents.
- non-chemical
 - broad application chemical
 - non-sustainable
 - non-system wide
19. Metabolism of food involves two separate processes. One of these, _____, involves breaking down complex molecules into simpler ones during chemical reactions.
- osmosis
 - anabolism
 - catabolism
 - hydrogenation
20. _____ is a subject that is helpful in the Food Science field. It involves using biology, genetics, and technology to improve plants, animals, and microorganisms for food production.
- Bromatology
 - Biotechnology
 - Apiology
 - Zymology
21. _____ is an environmental pathogen that can contaminate ready-to-eat products. If a contaminated food is consumed, it may be up to eight weeks before the onset of illness.
- Salmonella enteritidis*
 - Escherichia coli* O157:H7
 - Listeria monocytogenes*
 - Trichinella spiralis*

22. If a food product label bears the symbol in this picture, it means that the product has been _____.

- A. x-rayed
- B. sprayed with a bactericide
- C. treated with irradiation
- D. scanned with a metal detector



23. This chemical bond is formed by the transfer of electrons between atoms of different elements resulting in positive and negative ions.

- A. metallic bonds
- B. covalent bond
- C. hydrogen bond
- D. ionic bond

24. Starch is a _____, which is a large molecule formed when small molecules of the same kind chain together.

- A. protein
- B. polysaccharide
- C. fat
- D. triglyceride

25. A _____ is an explanation based on a body of knowledge gained from many observations and supported by the results of many food science experiments.

- A. theory
- B. hypothesis
- C. speculation
- D. conjecture

26. _____ is a pretreatment for dehydration that stops enzyme activity, but extends drying time due to water absorbed by food during the soaking pretreatment.

- A. Sulfiting
- B. Sulfuring
- C. Blanching
- D. Curing

27. A food manufacturer is producing frozen waffles. The waffles are prepared by pouring a batter into a waffle iron and the waffle iron transfers heat by _____ to the batter.

- A. conduction
- B. convection
- C. radiation
- D. induction

28. A _____ is used in the production of high fructose corn syrup, which is a substance that speeds up the reaction rate without being permanently changed or used up itself.

- A. substrate
- B. reactant
- C. product
- D. catalyst

29. _____ is often used in thin products with a large surface area (crackers) as a leavening agent to allow the unpleasant tasting gas that is produced to escape.

- A. Baking soda
- B. Baking powder
- C. Ammonium bicarbonate
- D. Yeast

30. _____ is a well-known organism in the coliform group and is an indicator of potential fecal contamination.

- A. *Escherichia coli*
- B. *Staphylococcus aureus*
- C. *Bacillus cereus*
- D. *Salmonella* spp.

31. Extrinsic factors are environmental factors that affect the growth rate of microorganisms. All of the following are extrinsic factors except _____.

- A. temperature
- B. relative humidity
- C. pH
- D. oxygen availability

32. _____ is a mycotoxin that is a potential chemical hazard in apples and apple products.
- Patulin
 - Ochratoxin
 - Aflatoxin
 - Penicillic acid
33. The length of time required at a specific temperature to destroy 90% of the microorganisms when processing food is called the _____.
- F-value
 - T-value
 - Z-value
 - D-value
34. _____ is the spoilage of lipids or lipid material through the chemical bonding of oxygen to unsaturated sites of fatty acids.
- Oxidative rancidity
 - Hydrogenation
 - Sublimation
 - Freezer burn
35. Some oils become cloudy when stored in a refrigerator. Because of this, many oils are _____ to precipitate saturated fatty acids.
- caramelized
 - freeze dried
 - flash frozen
 - winterized
36. A consumer finds a piece of plastic in their yogurt cup. This piece of plastic is an example of a _____ hazard.
- biological
 - physical
 - chemical
 - ergonomic
37. _____ is (are) a systematic, science based process control system for food safety that serves as the basic structure of a preventative system to produce safe foods.
- SSOPs
 - SOPs
 - GMPs
 - HACCP
38. _____ is formed in meat as naturally present enzymes use up available oxygen causing the meat to become brown in color.
- Nitrosomyoglobin
 - Oxymyoglobin
 - Metmyoglobin
 - Deoxymyoglobin
39. In grains, the _____ is the portion of the kernel that contains the embryo of a future plant, as well as the lipid or oil.
- husk
 - endosperm
 - bran
 - germ
40. _____ is a common process used in the food industry that involves the addition of salt, sugar, and vinegar to vegetables to lengthen their shelf life.
- Lyophilization
 - Pickling
 - Leaching
 - Extrusion
41. Bacteria multiply rapidly in the temperature range of _____. It is commonly called the temperature danger zone.
- 45 – 150 °F
 - 50 - 120 °F
 - 40 - 160 °F
 - 40 - 140 °F

42. About 50% of all outbreaks of food-related illnesses are caused by _____ and is commonly spread by food handlers.
- A. Norovirus
 - B. *Clostridium perfringens*
 - C. *Listeria monocytogenes*
 - D. *Salmonella* spp.
43. A foodborne disease outbreak occurs when _____ or more people develop the same illness after consuming the same food.
- A. two
 - B. ten
 - C. fifty
 - D. one hundred
44. Which food item is not one of the eight major food allergens?
- A. milk
 - B. soybeans
 - C. fish
 - D. cocoa
45. To help prevent the spread of disease and to produce safe food, what is the recommended length of time that hands should be washed prior to handling food?
- A. 10 seconds
 - B. 15 seconds
 - C. 20 seconds
 - D. 25 seconds
46. Glucose is an example of a _____.
- A. polysaccharide
 - B. disaccharide
 - C. monosaccharide
 - D. trisaccharide
47. In the Maillard reaction, reducing sugars react with the amino acid lysine. All of the following are examples of reducing sugars, except _____.
- A. sucrose
 - B. glucose
 - C. maltose
 - D. lactose
48. _____ is a type of polysaccharide that occurs naturally in brown algae as a skeletal component of their walls. It is useful in the food industry as a thickener or stabilizing agent.
- A. Pectin
 - B. Alginate
 - C. Chitin
 - D. Cellulose
49. In making ice cream, large amounts of air are incorporated into the mixture to increase the volume of the product. The percent increase in volume is known as _____.
- A. overrun
 - B. padding
 - C. bulking
 - D. surplus
50. Foods that have a pH greater than 5.3 are considered to be _____.
- A. high-acid foods
 - B. acid foods
 - C. medium-acid foods
 - D. low-acid foods