

# National FFA Career Development Event

## Food Science and Technology 2013 TEST

- \_\_\_\_\_ molecules can greatly inhibit protein molecules from bonding with each other and with water, leading to the reduction of foam's volume and stability.
  - Glucose
  - Carbohydrate
  - Fat**
  - Fructose
- Anthocyanins will create \_\_\_\_\_ colors in certain foods.
  - green and red
  - red and blue**
  - purple and brown
  - yellow and red
- Cola is an example of a(n) \_\_\_\_\_.
  - element
  - compound
  - heterogeneous mixture
  - homogeneous mixture**
- Potassium sorbate is a common food additive that functions as a(n) \_\_\_\_\_.
  - mold inhibitor**
  - stabilizer
  - anticaking agent
  - rancidity deterrent
- \_\_\_\_\_ is a polar covalent compound commonly referred to as the universal solvent.
  - Vinegar
  - Water**
  - Ethyl Alcohol
  - Oil
- This essential nutrient provides the body with its most concentrated source of energy.
  - Vitamins
  - Carbohydrates
  - Proteins
  - Fats**
- \_\_\_\_\_ is needed to metabolize protein and for tissue repair. It can be found in broccoli, beef liver and asparagus.
  - Riboflavin**
  - Biotin
  - Niacin
  - Thiamin
- \_\_\_\_\_ are commonly used to break down protein in the production of cocoa and chocolate for candy and other products.
  - Lactic-acid bacteria
  - Carbon-dioxide bacteria
  - Acetic-acid bacteria
  - Proteolytic bacteria**
- Fats serve many functions in foods. While many of its functions are desired, \_\_\_\_\_ is one function that is not desired.
  - emulsification
  - tenderizing
  - oxidation**
  - flavor
- \_\_\_\_\_ 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.
  - MSG**
  - Sugar
  - Trans fat
  - High fructose corn syrup
- \_\_\_\_\_ has a complicated production process involving fermentation and roasting resulting in production of more than 300 chemical compounds.
  - Wine
  - Chocolate**
  - Beer
  - 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 saliva, 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.  
**A. Patulin**  
 B. Ochratoxin  
 C. Aflatoxin  
 D. Penicillic acid
33. The length of time required at a specific temperature to destroy 90% of the microorganisms when processing food is called the \_\_\_\_\_.  
 A. F-value  
 B. T-value  
 C. Z-value  
**D. D-value**
34. \_\_\_\_\_ is the spoilage of lipids or lipid material through the chemical bonding of oxygen to unsaturated sites of fatty acids.  
**A. Oxidative rancidity**  
 B. Hydrogenation  
 C. Sublimation  
 D. Freezer burn
35. Some oils become cloudy when stored in a refrigerator. Because of this, many oils are \_\_\_\_\_ to precipitate saturated fatty acids.  
 A. caramelized  
 B. freeze dried  
 C. flash frozen  
**D. winterized**
36. A consumer finds a piece of plastic in their yogurt cup. This piece of plastic is an example of a \_\_\_\_\_ hazard.  
 A. biological  
**B. physical**  
 C. chemical  
 D. 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.  
 A. SSOPs  
 B. SOPs  
 C. GMPs  
**D. HACCP**
38. \_\_\_\_\_ is formed in meat as naturally present enzymes use up available oxygen causing the meat to become brown in color.  
 A. Nitrosomyoglobin  
 B. Oxymyoglobin  
**C. Metmyoglobin**  
 D. 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.  
 A. husk  
 B. endosperm  
 C. bran  
**D. 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.  
 A. Lyophilization  
**B. Pickling**  
 C. Leaching  
 D. Extrusion
41. Bacteria multiply rapidly in the temperature range of \_\_\_\_\_. It is commonly called the temperature danger zone.  
 A. 45 – 150 °F  
 B. 50 - 120 °F  
 C. 40 - 160 °F  
**D. 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***