

FOOD SCIENCE AND TECHNOLOGY
CAREER DEVELOPMENT EVENT
TEST QUESTION BANK

1. The % Daily Value is based on a _____calorie diet.
 - a. **2000**
 - b. 2500
 - c. 3000
 - d. 3500

2. Which of the following may NOT be used as a claim on a food label?
 - a. calorie free
 - b. low calorie
 - c. sugar free
 - d. **low sugar**

3. Which of the following foods is NOT exempted from food labeling?
 - a. whole coffee beans
 - b. dehydrated vegetables-condiment type
 - c. plain instant tea (unsweetened)
 - d. **unpopped popcorn**

4. The basal metabolism rate of a human being is NOT affected by ____
 - a. **diet**
 - b. size
 - c. sex
 - d. age

5. Water functions in the body to
 - a. **serve as a medium for chemical reactions**
 - b. dissolve oxygen
 - c. induce glycogen
 - d. moderate metabolism

6. A calorie is the amount of energy required to raise _____of water one degree _____.
 - a. 1 ounce, Fahrenheit
 - b. 1 gram, Centigrade
 - c. 1 kilo, Fahrenheit
 - d. **1 gram, Centigrade**

7. In food, carbohydrates supply_____Kcal. per gram.
 - a. **4**
 - b. 5
 - c. 6
 - d. 7

8. Which of the following food processing operations is NOT for cooling food products?
- air blast
 - ice water bath
 - extrusion**
 - vacuum oven
9. In food, proteins supply _Kcal. per gram.
- 4**
 - 5
 - 6
 - 7
10. Which one of the following is a type of food preserved, in part, by bacteria?
- yogurt**
 - bread
 - wine
 - whole milk
11. Which of the following is NOT an essential function of a food container?
- tamper-resistant
 - refrigerator fit**
 - light protection
 - sanitary protection
12. Protein is required for
- production of antibodies**
 - bacteria inhibition
 - proper bowel function
 - absorption of water
13. Bacteria cannot grow in an all _____ environment because of lack of available moisture.
- sugar**
 - milk
 - meat
 - vegetables
14. Which of the following work together to maintain chemical, fluid, and electrical balance between tissue cells and blood?
- sodium and potassium**
 - calcium and phosphorus
 - iron and vitamin C
 - calcium and vitamin D

15. Which of the following cannot be digested, absorbed, but looks, feels, and behaves like fat?
- Olestra**
 - Trailblazer
 - Simplese
 - Aspartame
16. Which of the following is a macromineral needed by our bodies to maintain health?
- copper
 - tin
 - magnesium**
 - iron
17. To make some ready-to-eat cereals, manufacturers use:
- extending and fluffing**
 - flaking and shredding
 - inflaking and inshredding
 - posting and kellogging
18. To ensure that the foods you store maintain their safety and quality, make sure your refrigerator is at _____degrees Fahrenheit.
- 35**
 - 40
 - 45
 - 50
19. A fatty acid does NOT contain which of the following elements?
- carbon**
 - nitrogen
 - oxygen
 - hydrogen
20. To increase shelf life, the air in a controlled atmosphere storage room containing apples should contain only_____% oxygen rather than the 21% found in normal air.
- 3**
 - 5
 - 7
 - 9
21. The _____ regulates genetically engineered microbes used in natural pesticides.
- Environmental Protection Agency**
 - United States Department of Agriculture
 - United States Department of Genetic Engineering
 - Food and Drug Administration

22. The _____dose is the largest dose that the animal in an experiment can take without endangering its health.
- a. acceptable daily intake
 - b. maximum tolerated dose**
 - c. no-observed effect level
 - d. LD50
23. Application efficiency of pesticides can be improved by
- a. scouting fields**
 - b. certified seed application
 - c. cultivating fields
 - d. using resistant fertilizer
24. A left-over hotdish needs to be reheated prior to serving again. The internal temperature of the food should reach_____degrees F.
- a. 140
 - b. 150 and held for two hours
 - c. 160
 - d. 165**
25. In which of the following foods is solanine considered a toxin?
- a. potato**
 - b. tomato
 - c. coffee
 - d. tea
26. An emulsifier _____
- a. prevents the separation of oil and water in food**
 - b. maintains the shape or crispness of fruits and vegetables
 - c. controls insects and pests
 - d. produces or stimulates CO₂ production
27. A food additive that retards rancidity of unsaturated oils and prevents browning in fruits and vegetables that occur during exposure to oxygen is called an
- a. anti-caking free-flowing agent
 - b. antimicrobial agent
 - c. antioxidant**
 - d. antibuffer agent
28. Starch is a_____ *
- a. protein
 - b. carbohydrate**
 - c. fat
 - d. mineral

29. If the legal maximum of nitrite (NO₂) is 156 ppm, how much sodium nitrite can you legally add to 1 kg. of meat?
- a. **156mg**
 - b. 31.2oz
 - c. 78mg
 - d. 15.6 ounces
30. _____ stands for a system that is used to enhance food safety in food processing, packaging, storage, distribution, and preparation.
- a. Good manufacturing practices
 - b. **Hazard analysis and critical control point**
 - c. High accuracy and contamination control point
 - d. Best management practices
31. The _____ registers or approves the use of pesticide tolerance levels for pesticide levels in food.
- a. USDA
 - b. **FDA**
 - c. NMFS
 - d. EPA
32. _____ are places in the food processing system where the lack of proper control can result in a safety risk for the consumer.
- a. Concentrated contamination control processes
 - b. **Critical control points**
 - c. Critical contamination places
 - d. Contamination processing points
33. A food additive that promotes or produces a desired physical state or texture is called a(n) _____
- a. enzyme
 - b. **formulation aid**
 - c. firming agent
 - d. humectants
34. Tomatoes are stored and shipped at temperatures between
- a. 70°to90°F
 - b. 15°to20°F
 - c. **500 to 65°F**
 - d. 0°to25°F

35. _____ is defined as individual cells of crop plants exhibiting desirable characteristics, which are selected and grown into mature plants.
- a. recombinant DNA
 - b. recombinant RNA
 - c. pathoclonal variation
 - d. **somaclonal variation**
36. A bacteria that can contaminate poultry products and cause foodborne illness in humans is _____
- a. Lactobacillus
 - b. Clostridium
 - c. Gram Positive
 - d. **Salmonella**
37. Two factors that accelerate rancidity in food products are _____ and _____
- a. temperature and light
 - b. **light and oxygen**
 - c. light and moisture
 - d. light and soluble minerals
38. The most effective way to eliminate living microorganisms in spices is
- a. freezing
 - b. **irradiation**
 - c. heat
 - d. selected chemicals
39. A method of food preservation that does destroy microorganism and enzymes is _____
- a. drying
 - b. **freezing**
 - c. microwaving foods
 - d. pressure canning
40. The food pyramid indicates that the _____ group is the where you should obtain the most servings each day.
- a. milk
 - b. fruit
 - c. vegetable
 - d. **bread**
41. An addition to of a nutrient to foods such as adding vitamin D to milk is called _____
- a. irradiation
 - b. fermentation
 - c. nutrification
 - d. **fortification**

42. Only Lactic acid bacteria can ferment sugars and nutrients in pickles because they
- a. use a natural occurring enzyme
 - b. are tolerant of salt levels**
 - c. produce lactic acid
 - d. use acetic acid
43. Which is of the following food components is primarily derived from fruits, vegetables, and grains?
- a. fat
 - b. protein
 - c. minerals
 - d. carbohydrates**
44. _____grams of a day's food intake should be protein
- a. 30
 - b. 35
 - c. 40
 - d. 45**
45. A list of ingredients must be included on a food label. The first ingredient listed is by its amount of
- a. percent protein
 - b. grams of carbohydrates
 - c. total weight**
 - d. fat content
46. Anemia is a disease resulting from a low red blood cell count. The red blood cells are the cells that carry_____ throughout the body ~or absorbtion.
- a. fiber
 - b. vitamin B12
 - c. iron**
 - d. carbon dioxide
47. Fiber is not digestible, it passes through the intestine system and is removed in the stools. It absorbs water on its way through the digestive systems and results in a softer stool, reducing the risk of:
- a. osteoporosis
 - b. hemorrhoids**
 - c. pernicious anemia
 - d. heart disease

48. Soy sauce is made with the use of _____
- a. **mold**
 - b. bacteria
 - c. fungi
 - d. yeast
49. Fats and oils are part of a family of compounds called _____
- a. proteins
 - b. carbohydrates
 - c. **lipids**
 - d. fiber
50. The government agency responsible for ensuring that meat and poultry are safe and wholesome for consumption is the _____
- a. Food and Drug Administration
 - b. **United States Department of Agriculture**
 - c. Department of Health and Human Services
 - d. Animal and Plant Health Inspection Service
51. Glucose, a simple sugar, melts at 150°C. This is equivalent to
- a. 101.1°F
 - b. 238°F
 - c. 65.5°F
 - d. **302°F**
52. It is important for a food technologist to measure the relative number of hydrogen and hydroxide ions in a food system. This is also known as measuring the _____ of a food.
- a. water activity
 - b. brix
 - c. **pH**
 - d. sodium concentration
53. _____ reacts with amino acids when milk is heated to contribute to the tan color and slightly caramelized flavor of cooked milk products.
- a. **Lactose**
 - b. Casein
 - c. Whey
 - d. Milk fat
54. An additive that can keep a compound, mixture or solution from changing its form or chemical nature is called a
- a. antioxidant
 - b. buffer
 - c. **stabilizer**
 - d. preservative

55. A microorganism commonly found in human nasal passages and on the skin that can cause foodborne illness if food becomes contaminated is
- Clostridium perfringens*
 - Staphylococcus aureus***
 - Clostridium botulinum*
 - Escherichia coli* O157:H7
56. Flavor is sensed by taste buds which are sensory organs located on parts of the tongue. The taste buds on the sides of the tongue respond to _____ flavors.
- sweet
 - bitter
 - salty
 - sour**
57. A process that changes the shape of a protein molecule without breaking its covalent bonds is called _____
- denaturation**
 - coagulation
 - agglutination
 - saturation
58. A food technologist developing a formulation for a soft dough should use
- an equal ratio of liquid to flour
 - two parts flour to one part liquid
 - three parts flour to one part liquid**
 - six parts flour to one part liquid
59. Microorganisms that cause human disease are known as _____
- parasites
 - pathogens**
 - spores
 - vegetative cells
60. Oil and water normally separate because they are _____
- emulsified
 - immiscible**
 - colloidal
 - a colloidal dispersion
61. _____ is the complete destruction of all microorganisms, except some bacterial spores.
- Commercial sterilization**
 - Pasteurization
 - Irradiation
 - Sterilization

62. A _____ is an illness caused by consuming a food that contains a harmful metabolite from a microorganism.
- a. food borne infection
 - b. bactericide
 - c. bacteriostat
 - d. **food borne intoxication**
63. A synthetic sweetener made of aspartic acid and phenylalanine that is found in many diet soft drinks is called _____
- a. **aspartame**
 - b. sorbitol
 - c. saccharin
 - d. cyclamates
64. _____ is an alternative name for baking soda.
- a. Carbon dioxide
 - b. Potassium bitartrate
 - c. **Sodium bicarbonate**
 - d. Calcium carbonate
65. Vegetables are stored in individual rooms within a warehouse. The room storing would be expected to generate the most heat in one 24 hour period in their confined storage space.
- a. snap beans (5600 BTU/Ton!24 hours)
 - b. asparagus (3440 BTU/Ton!12 hours)
 - c. cucumbers (8400 BTU/Ton!48 hours)
 - d. **lima beans (4100 BTU/Ton!6 hours)**
66. The use of biochemical techniques to alter the genetic makeup of a plant to enhance characteristics for food production is called _____
- a. biogenetics
 - b. **biotechnology**
 - c. biophysiology
 - d. biophysics
67. The use of food additives in the U.S. is regulated by the
- a. **Food and Drug Administration**
 - b. United States Department of Agriculture
 - c. Department of Health and Human Services
 - d. Animal and Plant Health Inspection Service
68. Fruits and vegetables discolor when bruised or cut due to
- a. caramelization
 - b. sulfiting
 - c. dehydration
 - d. **enzymatic browning**

69. The part of a cauliflower used for food by consumers is (are) the
- tuber
 - bulb
 - flower buds**
 - berries
70. A food contains 8 grams of fat, 4 grams of carbohydrates and 5 grams of protein. That would be equivalent to calories.
- 88
 - 108**
 - 93
 - 113
71. A food technologist is formulating a low carbohydrate pasta so they need to select a grain source that has the highest amount of protein and lowest amount of carbohydrates. They should use
- hard wheat**
 - millet
 - rice
 - soft wheat
72. Food that is dried at too high a temperature during dehydration can become on the outside of the product.
- blanched
 - lyophilized
 - mushy
 - casehardened**
73. One of the functions of sodium nitrite in meat products is to _____
- inhibit mold growth
 - inhibit growth of *Clostridium botulinum* in vacuum packaged cured meats**
 - minimize purge in vacuum packaged meats
 - reduce color fading in aerobically packaged cured meats
74. Sodium benzoate is used in soft drinks primarily to inhibit
- rancidity
 - color deterioration
 - mold growth**
 - flavor breakdown

75. A company is formulating a high quality ice cream and wants to use milk from a breed of cow that will provide the highest percentage of butterfat in its milk. Milk from a _____ cow should be used.
- a. **Jersey**
 - b. Holstein
 - c. Shorthorn
 - d. Brown Swiss
76. Vitamin D is added to milk to prevent a condition called _____
- a. scun'y
 - b. pellagra
 - c. **rickets**
 - d. beriberi
77. There are _____ principles of HACCP.
- a. 3
 - b. 5
 - c. **7**
 - d. 9
78. Chocolate undergoes a _____ process as part of one of the production steps from harvest to a finished chocolate candy bar.
- a. pasteurization
 - b. homogenation
 - c. **fermentation**
 - d. lyophilization
79. GMP is an acronym for _____ in the food industry.
- a. get more practice
 - b. good manufacturing procedures
 - c. good methods procedures
 - d. **good manufacturing practices**
80. Energy lost when water molecules form ice crystals is called
- a. specific heat
 - b. **latent heat**
 - c. heat of fusion
 - d. heat of vaporization
81. A compound that destroys bacteria on contact and has residual activity to continue to kill bacteria on a surface is called a _____
- a. **bactericide**
 - b. bacteristat
 - c. chemicide
 - d. chemistat

82. A retort is a piece of equipment used for _____
- a. flying
 - b. drying
 - c. canning**
 - d. baking
83. The purpose for using a leavening agent such as baking soda or baking powder in cakes and cookies is to provide a source of _____
- a. sodium dioxide
 - b. carbon monoxide
 - c. sodium monoxide
 - d. carbon dioxide**
84. To test a food manufacturing process with batches larger than bench top size, but smaller than full scale industry size, processors will use _____
- a. mass production
 - b. batch production
 - c. pilot scale production**
 - d. prototype production
85. Once food production operations are finished, a sanitation crew will remove all visible dirt, grime and grease. This step is also called _____
- a. cleaning**
 - b. sanitizing
 - c. rinsing
 - d. disassembly
86. Fruits and vegetables are primarily composed of _____
- a. carbohydrates
 - b. water**
 - c. protein
 - d. fiber
87. _____ is (are) required, by law, to be on all food labels.
- a. The product price
 - b. Preparation instructions
 - c. The quantity**
 - d. Suggested uses
88. If a food product contains 10,000,000 (10⁷) microbes per gram, and experiences a 99.9999 percent kill rate, then _____ microbes per gram will survive.
- a. 1
 - b. 10**
 - c. 100
 - d. 1,000

89. Butter is made by agitating cream to form a _____ emulsion.
- a. **water-in-oil**
 - b. gas-in-liquid
 - c. oil-in-water
 - d. gas-in-solid
90. Water activity is the degree of availability of water in food. The water activity of pure water is _____
- a. 0.100
 - b. **1.000**
 - c. 10.00
 - d. 100.0
91. The sugar _____ is sweeter than sucrose.
- a. **fructose**
 - b. lactose
 - c. glucose
 - d. maltose
92. The _____ a fatty acid chain attached to a glycerol becomes, the more solid a fat will be at room temperature.
- a. shorter
 - b. **longer**
 - c. fatty acid chain length has no impact on how solid a fat becomes
 - d. more unsaturated
93. To control crystal size when making candy, an interfering agent such as _____ is added.
- a. salt
 - b. sugar
 - c. water
 - d. **cream of tartar**
94. The protein in meat that is primarily responsible for meat color is _____
- a. myosin
 - b. actin
 - c. **myoglobin**
 - d. hemoglobin
95. Inorganic elements essential for human health and growth are called
- a. vitamins
 - b. **minerals**
 - c. proteins
 - d. fiber

96. The technical name for freeze drying is _____
- lyophilization**
 - sublimation
 - condensation
 - evaporation
97. Food scientists, who use their ability to view and understand the entire production process well enough to identify problems areas or deficiencies, are _____
- monitoring quality assurance
 - troubleshooting**
 - implementing HACCP
 - pilot testing
98. _____ is a globular protein that is found in milk.
- Casein**
 - Keratin
 - Elastin
 - Gluten
99. Sucrose, galactose and glucose caramelize at 170°C. This is equivalent to _____
- 126°F
 - 338°F**
 - 248°F
 - 77°F
100. _____ is scientifically evaluating a new food product such as Pop-Tarts Yogurt Blasts for appearance, odor, taste, and mouthfeel.
- Proximate analysis
 - Food chemistry
 - Market analysis
 - Sensory evaluation**
101. An example of a homogenous mixture is (a)
- pizza
 - salad containing lettuce, vegetables and cheese
 - cola**
 - beef stew
102. Food heats up in a microwave oven primarily due to vibration of _____ molecules.
- water**
 - fat
 - protein
 - carbohydrate

103. *Clostridium botulinum* is the organism that causes _____
- a. hemolytic uremic syndrome
 - b. vomiting
 - c. botulism**
 - d. necrotic enteritis
104. Meat, fruits and vegetables contain between 70 to 90 percent
- a. carbohydrates
 - b. protein
 - c. fat
 - d. water**
105. Pudding that is prepared by cooking thickens as it cools due to the use of a. milk
- a. starch
 - b. sugar**
 - c. vanilla
106. Using a process called _____, liquid vegetable oils are changed to shortening and margarine.
- a. hydrogenation**
 - b. oxidation
 - c. saturation
 - d. aeration
107. _____ is an elastic, stretchy protein found in wheat.
- a. Myosin
 - b. Casein
 - c. Gluten**
 - d. Albumin
108. Processed food products such as cereals and orange juice may be fortified with to enhance their nutritional content.
- a. stabilizers
 - b. chelators
 - c. antioxidants
 - d. vitamins and minerals**
109. When fruits such as pears, apples, or bananas are cut or bruised, _____ causes the cut surface to become discolored
- a. the maillard reaction
 - b. enzymatic browning**
 - c. exposure to light
 - d. catabolism

110. Since oil and water normally separate because they are immiscible, an _____ can be used to keep these liquids mixed together in solution.
- a. invertase
 - b. antimicrobial
 - c. caking agent
 - d. **emulsifier**
111. Chemical leavening agents such as baking soda and baking powder produce _____ during baking to lighten or aerate baked goods.
- a. carbon monoxide
 - b. **carbon dioxide**
 - c. sodium bicarbonate
 - d. steam
112. During the production of sauerkraut, cabbage is _____ to contribute to the aroma, flavor and color of sauerkraut.
- a. **fermented**
 - b. homogenized
 - c. pasteurized
 - d. lyophilized
113. _____ is the time a food product can be stored before deteriorating.
- a. Retail life
 - b. Refrigeration life
 - c. Quality life
 - d. **Shelf life**
114. HTST milk is milk that has been processed using _____ procedures.
- a. homogenous tempering short time
 - b. **high temperature short time**
 - c. hot temperature short tempering
 - d. homogenization time scalding temperature
115. _____ are microorganisms that cause disease in humans.
- a. Thermophiles
 - b. Prions
 - c. **Pathogens**
 - d. Parasites
116. Instant mashed potatoes flakes are an example of a food product that has undergone a _____ process.
- a. fermentation
 - b. curing
 - c. **dehydration**
 - d. carmelization

117. The FDA has a list of over 600 ingredients considered safe and not designated as additives that appear on a GRAS list. GRAS is an acronym for _____
- a. **generally recognized as safe**
 - b. government recognition as sound
 - c. government recognized as safe
 - d. generally recognized as secure
118. Pressure canners used in the commercial manufacture of canned products are known as ____
- a. steam blanchers
 - b. **retorts**
 - c. plate exchangers
 - d. sublimators
119. Meat products that have been irradiated bear _____ on the product label at retail.
- a. **a radura**
 - b. no symbol or term indicating the product has been irradiated
 - c. the term electronically pasteurized
 - d. the term electronically sterilized
120. A food contains 4 grams of protein, 5 grams of fat, and 2 grams of carbohydrates. That would be equivalent to _____ calories.
- a. 64
 - b. **69**
 - c. 54
 - d. 128
121. _____ is added to meat to produce a cured meat color and flavor, and to serve as an antibotulinal agent.
- a. Sodium erythorbate
 - b. Sodium phosphate
 - c. Sodium chloride
 - d. **Sodium nitrite**
122. _____ is considered to be basic because the number of hydroxide ions outnumber the hydrogen ions in a solution.
- a. lemon juice
 - b. water
 - c. **baking soda**
 - d. coffee
- .

123. To determine the amount of free water available for microbes to use in a food system, a food scientist would measure the _____ of that food.
- a. **water activity**
 - b. percent water
 - c. pH
 - d. brix
124. When peanuts are ground to make peanut butter, a _____ is added. This keeps the peanut oil from separating out to the top of the jar during storage.
- a. caking agent
 - b. **stabilizer**
 - c. humectant
 - d. antioxidant
125. The family of compounds that includes fats and oils is called _____
- a. carbohydrates
 - b. proteins
 - c. **lipids**
 - d. amines
126. Which of the following packages is an example of aseptic packaging?
- a. plastic milk carton
 - b. **Tetra Pak drink box**
 - c. glass drink bottle
 - d. plastic bread bag
127. Polyethylene terephthalate, commonly known as _____ is the packaging material used for 2 liter soda bottles.
- a. PolyT
 - b. PETP
 - c. PT
 - d. **PET**
128. A food that would be rich in omega-3 fatty acids would be _____
- a. **fatty fish**
 - b. lard
 - c. olive oil
 - d. butter
129. To measure the texture of a d=Anjou pear, a food technologist might use a
- a. spiral plater
 - b. gas chromatograph
 - c. **texture analyzer**
 - d. stomacher.

130. What happens to the boiling point of water when it is heated at high altitudes?
- It increases
 - It decreases**
 - It stays the same
 - Water doesn't boil at high altitude
131. Regulations prescribe how ingredients must be listed on food labels. What is the general stipulation with respect to the order that ingredients are listed?
- By alphabetical order
 - By ascending order of proportion by weight
 - By descending order of proportion by weight**
 - By descending order of proportion by volume
132. Cheese curd is primarily composed of coagulated
- protein**
 - fat
 - carbohydrate
 - lactose
133. Sodium benzoate is used as a preservative in soft drinks to inhibit growth of _____
- bacteria
 - molds**
 - yeasts
 - viruses
134. The red color of a tomato is due to a compound called
- beta carotene
 - lycopene**
 - limonene
 - myosin
135. Peppers can deliver a very hot sensation when consumed because of the level in the pepper.
- fructose
 - citric acid
 - theobromine
 - capsaicin**
136. The chemical name for table salt is _____
- sodium bicarbonate
 - potassium nitrate
 - sodium chloride**
 - sodium bisulfite

137. When proteins begin to break down in meat, the process is called _____
- a. **proteolysis**
 - b. lipolysis
 - c. glycolysis
 - d. hydrolysis
138. A compound that has little or no flavor itself but is added to food to assist or boost the primary flavor of the food to which it is added is a _____
- a. processing aid
 - b. humectant
 - c. stabilizer
 - d. **flavor enhancer**
139. Glucose is a simple sugar, also known as a _____
- a. disaccharide
 - b. **monosaccharide**
 - c. polysaccharide
 - d. multisaccharide
140. When a food processing plant is cleaned at the end of a production day, the order of clean-up is _____
- a. rinse, clean with detergent, dry pick up, rinse, sanitize
 - b. clean with detergent, rinse, sanitize, rinse, dry pick up
 - c. **dry pick up, rinse, clean with detergent, rinse, sanitize**
 - d. dry pick up, rinse, clean with detergent, sanitize, rinse
141. When water is used as an ingredient in food formulations, it must be
- a. soft water
 - b. **potable water**
 - c. hard water
 - d. purified water
142. _____ is an ingredient used in food to slow the reaction of lipids forming free radicals leading to oxidative rancidity in food.
- a. **Butylated hydroxyanisole**
 - b. Sodium caseinate
 - c. Potassium sorbate
 - d. Disodium inosinate
143. All the essential amino acids would most likely be found in one serving of _____
- a. peanuts
 - b. legumes
 - c. bran cereal
 - d. **beef**

144. Milk and ice cream processing involves both homogenization and pasteurization. Homogenization is _____
- evaporation of liquid under vacuum leaving a concentrate
 - addition of bacterial starter cultures
 - reduction in size of fat globules by forcing the milk or cream through a very small opening under pressure**
 - rapid heating of milk to very high temperatures to kill disease-causing bacteria in the milk product
145. The brownish color of aerobically packaged ground beef that has been stored in a refrigerator for several days is due to
- deoxymyoglobin
 - metmyoglobin**
 - myoglobin
 - oxymyoglobin
146. _____ is a preventative food safety program required by juice processors.
- GMP=s
 - SSOP=s
 - Quality assurance
 - HACCP**
147. The building blocks of protein are called
- amino acids**
 - monosaccharides
 - fatty acids
 - triglycerides
148. The enzyme added to milk to cause curd formation in cheese is called
- amylase
 - rennin**
 - lactase
 - maltase
149. Good Manufacturing Practices are used to:
- enforce strict laws related to safety regulations
 - evaluate the design of food processing plants -**
 - cover the consumer aspect of food processing
 - brief food suppliers of their product's safety

150. FSIS stands for: -
- a. Food Safety and Inspection Administration
 - b. Food Safety and Inspection Service**
 - c. Fiber Safety Inspection Service
 - d. Food and Drug Administration
151. The HACCP process uses _____ to show the entire food processing operation.
- a. personnel
 - b. flow charts and diagrams**
 - c. food processing software
 - d. risk assessment
152. Poultry consumption in the United States has increased _____ from 1976 to 1989.
- a. 25%!**
 - b. only slightly
 - c. less than beef consumption
 - d. more than 65%
153. In HACCP systems, critical points should be identified so that hazard can be _____
- a. produced
 - b. eliminated**
 - c. detoured
 - d. detected
154. An example of a GMP would be
- a. concrete walls
 - b. concrete floors filtering air
 - c. double-pane windows**
 - e. none of the above**
155. A bacteria that infects plants through wound sites and can inject DNA into cells is:
- a. Agrobacterium**
 - b. aflatoxin
 - c. Selenastrum Capricornum Prinz
 - d. Clostridium perfringens
156. Surface-active agents that prevent like-particle conglomeration are:
- a. Adenosine triphosphates
 - b. Emulsifiers**
 - c. Pathogens
 - d. Cladocerans

157. _____ means that the product contains bacteria that can make more of the product.
- a. active ingredients
 - b. active culture**
 - c. active byproducts
 - d. live bacteria
158. Which one of the following uses mold to derive the final product?
- a. yogurt
 - b. soysauce**
 - c. pickles
 - d. whole milk
159. Which of the following would be a requirement or function of a commercial food container:
- a. gas and odor protection
 - b. sanitary protection
 - c. degradable**
 - d. resistance to impact
160. A synthetic hormone to increase milk production is
- a. BSA
 - b. BSE
 - c. BST**
 - d. none of the above
161. Bacteria cannot grow in all _____ environment because of lack of available moisture.
- a. sugar**
 - b. milk
 - c. meat
 - d. vegetables
162. Which of the following is NOT a type of food processing?
- a. Cold processing
 - b. Rehydration**
 - c. Fermentation
 - d. Irradiation
163. Which of the following processes changes liquid oils into semisolids and makes the oil less susceptible to oxidation and rancidity?
- a. fermentation
 - b. hydrogenation**
 - c. rehydration
 - d. oxidization

164. The demand for which of the following food products would go up the least if per capita income increased significantly?
- a. alcoholic beverages
 - b. dairy products**
 - c. food purchased away from home
 - d. red meat and poultry
165. An addition of a nutrient to foods such as adding vitamin D to milk is called _____
- a. irradiation
 - b. fermentation
 - c. nutrification
 - d. fortification**
166. If acidic foods(such as tomatoes) are added to milk,
- a. fat coagulates
 - b. fat content increases
 - c. casein coagulates**
 - d. whey coagulates
167. Which of the following foods cannot be effectively frozen?
- a. broccoli
 - b. cabbage
 - c. carrots
 - d. lettuce**
168. Which of the following is not an essential function of a food container?
- a. tamper-resistant
 - b. refrigerator fit**
 - c. light protection
 - d. sanitary protection
169. A discovery by a 19th century economist relating family income with food purchases as a proportion of total expenditures is often referred to as:
- a. Engel's law
 - b. Engel's Law**
 - c. Angers's Law
 - d. Einstein's law
170. A major criticism of American diets and eating patterns is that our diet contains far too much
- a. carbohydrates
 - b. starch
 - c. fat**
 - d. protein

171. Only three processes have been identified to safely eliminate living microorganisms. They are:
- freezing, heat, and irradiation
 - dehydration, selected chemicals, and irradiation
 - heat, selected chemicals, and irradiation**
 - heat, heavy salting, and irradiation
172. A list of ingredients must be included on a food label. The first ingredient listed is by its amount of:
- percent protein
 - grams of carbohydrates
 - total weight**
 - fat content
173. In most cases, which phrase meant that the food product in question contains no nutritive carbohydrate sweetener, either added or naturally occurring, and is a low or reduced calorie food?
- “sugar free”**
 - “low in sugar”
 - “no sugar added”
 - “reduced sugar”
174. Three kinds of information must be found on a food label. One of those listed is incorrect. Which one of the following is incorrect?
- product identification
 - name and address of the manufacturer, packer, or distributor
 - net contents or net weight
 - sources of food ingredients**
175. If NOEL value of a pesticide is 1 gram, what is the Acceptable Daily Intake (ADD) for each kilogram of body weight?
- 1 gram
 - 0.1 gram**
 - 10 milligrams
 - 100 milligrams
176. Antioxidants perform all of the following except:
- Prevent protein degradation**
 - Preserve color
 - Minimize rancidity
 - Preserve flavor

177. A chemical linked to long-term effect such as cancer, sterility and birth defects could cause which of the following:

- a. **chronic toxicity**
- b. acute toxicity
- c. defect action levels
- d. total adverse response

178. LD50 represents:

- a. **The concentration of a chemical at which half of the test animals die**
- b. A test for neurotoxins
- c. Lethality when the dosage level is multiplied by 50
- d. A measurement of species specificity

179. A toxin commonly found in corn and peanuts is:

- a. Solanine
- b. Protease
- c. Goitrogens
- d. **Aflatoxins**

180. Which of the following is NOT a way to control food pathogens?

- a. wash hands frequently
- b. **keep food at 40-140 F 00**
- c. cook foods thoroughly
- d. thaw meats in the refrigerator

181. Which one of the following is NOT a type of food preserved by mold?

- a. Blue cheese
- b. Soy sauce
- c. gari
- d. **pickles**

182. The acceptable daily intake (ADI) of a non-carcinogen is:

- a. **1/100 of a no-observed effect level (NOEL)**
- b. 1/1 000 of no-observed effect level (NOEL)
- c. zero
- d. one-tenth of a no-observed effect level (NOEL).

183. Cholesterol is a chemical that actually belongs to the ____ family.

- a. carbohydrate
- b. protein
- c. **alcohol**
- d. fat

184. Which is of the following food component is primarily derived from red meat and poultry?

- a. ash
- b. protein**
- c. minerals
- d. carbohydrates

185. Which of the following is not a primary function of protein?

- a. growth and maintenance of cells
- b. production of antibodies
- c. provides good and readily available source of energy**
- d. tissue and nerve development

186. Using salt to control the unwanted growth of microorganisms in food:

- a. has been used for many years
- b. is only effective if foods are stable
- c. preserves food by Increasing available water (AW)
- d. a & b**

187. When a food scientist appraises a food using sight, smell, taste and possibly touch, this is often referred to as:

- a. extra sensory perception
- b. sensory perceptIon
- c. sensory orientation
- d. sensory evaluation**

188. Bacteria do not thrive below 40 degrees Fahrenheit or above _____ degrees Fahrenheit.

- a. 110F
- b. 120F
- c. 130F
- d. 140F**

189. Only three processes have been identified to safely eliminate living microorganisms. They are:

- a. freezing, heat, and irradiation
- b. dehydration, selected chemicals, and irradiation**
- c. heat, selected chemicals, and irradiation
- d. heat, heavy salting, and irradiation

190. A list of ingredients must be included on a food label. The first ingredient listed is by its amount of:

- a. percent of fat
- b. grams of carbohydrates**
- c. total weight
- d. total volume

191. If NOEL value of a pesticide is 3 grams, what is the ADI for each kilogram of body weight?

- a. 3gram**
- b. 0.3 gram
- c. 30 milligrams
- d. 300 milligrams

192. LD50 represents:

- a. The concentration of a chemical at which half of the test animals die
- b. A test for neurotoxins
- c. Lethality when the dosage level is multiplied by 50
- d. A measurement of species specificity**

193. All meat should be cooked to the following temperature to kill Salmonella species:

- a. 121F
- b. 145F**
- c. 16SF
- d. 170F

194. The terms “chewy”, “fibrous”, “gritty”, “mealy”, and “sticky” are important in the of foods.

- a. grading
- b. flavor
- c. nutritional value
- d. texture**

195. The correct calculation for optimal inventory is:

- a. $OI = 1/2 RQ + PO$
- b. $OI = OP + 1/2 RO$
- c. $OI = RQ + 1/2 P0$**
- d. None of the above

196. Egg white changes from a clear liquid to an opaque white solid upon heating due to _____ denaturation

- a. fat
- b. protein**
- c. carbohydrate
- d. glycogen

197. _____ is the process of thawing frozen products.

- a. Flaking
- b. Tamping
- c. Tempering**
- d. Blanching

198. Margarine is formed by adding hydrogen atoms to unsaturated fatty acids, a process otherwise known as

- a. oxidation
- b. hydrogenation**
- c. mastication
- d. esterification

199. At sea altitude, water boils at — _____

- a. 1000° F
- b. 212° F**
- c. 212° C
- d. 900° C

200. Starch is a type of _____

- a. protein
- b. fat
- c. carbohydrate**
- d. mineral

201. _____ is the science of evaluating a food product for smell, appearance, taste and texture.

- a. Proximate analysis
- b. Food chemistry
- c. Rheology
- d. Sensory evaluation**

202. An eating establishment that does not have table service is considered to be a _____ restaurant.
- a. white-tablecloth
 - b. fast-food**
 - c. full-service
 - d. gourmet dining
203. When marketing a new food product nationally to the public, major food companies will launch a _____
- a. product rollout**
 - b. market channel
 - c. product extension
 - d. regional promotion
204. When vegetables are stored they undergo a process termed _____ that yields principally water and carbon dioxide.
- a. respiration**
 - b. perspiration
 - c. dehydration
 - d. oxidation
205. A food that can be stored at room temperature for a prolonged or indefinite time period with minimal quality deterioration is said to be _____
- a. room stable
 - b. shelf superior
 - c. shelf stable**
 - d. room superior
206. _____ is the ingredient that imparts a unique color and flavor to cured meat products.
- a. Sodium chloride
 - b. Sodium nitrate
 - c. Sodium citrate
 - d. Sodium nitrite**
207. Chemically leavened dough uses _____ as a leavening agent.
- a. air
 - b. baking powder**
 - c. yeast
 - d. steam

208. Milk undergoes a process called _____ that is intended to break down fat globules so they are smaller and more uniform in size.
- a. **homogenization**
 - b. pasteurization
 - c. encapsulation
 - d. emulsification
209. _____ is responsible for the bright cherry red color of ground beef.
- a. Myoglobin
 - b. **Oxymyoglobin**
 - c. Metmyoglobin
 - d. Dinitrosohemochromogen
210. HACCP is an acronym that stands for _____
- a. hazard analysis and critical control program
 - b. have a cup of coffee and pray
 - c. **hazard analysis and critical control point**
 - d. hazard analysis and critical command program
211. Foods that have a $\text{pH} > 5.3$ are considered to be _____
- a. high-acid foods
 - b. acid foods
 - c. medium-acid foods
 - d. **low-acid foods**
212. By using _____ the microbial species introduced for fermentation can be controlled.
- a. back slopping
 - b. natural contamination
 - c. **a starter culture**
 - d. a mother culture
213. Proteins are primarily composed of _____
- a. lipids
 - b. **amino acids**
 - c. sugars
 - d. carbohydrates
214. To determine the amount of free water available for microorganisms to grow in a food product, _____ is measured.
- a. **water activity**
 - b. moisture content
 - c. relative humidity
 - d. water concentration

215. The process when ice becomes water vapor without first going through a liquid state is called _____
- a. convection
 - b. evaporation
 - c. sublimation**
 - d. osmosis
216. Lemon juice which is acidic would have an approximate pH of _____
- a. 7.2
 - b. 8.1
 - c. 2.3**
 - d. 6.8
217. Sucrose, or table sugar, is _____
- a. a complex carbohydrate
 - b. made of galactose and fructose
 - c. made of glucose and galactose
 - d. a simple carbohydrate**
218. A food contains 6 grams of fat. That would be equivalent to _____ calories.
- a. 54**
 - b. 24
 - c. 42
 - d. 60
219. A complex protein molecule that stimulates or speeds up a specific chemical reaction without being used up itself is called a(n)
- a. microorganism
 - b. experiment
 - c. mycelium
 - d. enzyme**
220. _____ is a system for monitoring food production for compliance with health, safety and product standards.
- a. Research and development
 - b. HACCP
 - c. Quality assurance**
 - d. Government inspection
221. Fragments of lipids and other components that are formed in lipid-containing foods that undergo irradiation are called
- a. radiolytic products**
 - b. nuclear waste
 - c. proteolytic products
 - d. radioactive

222. _____ is composed of one molecule of glycerol and three fatty acids.
- a. Tryptophan
 - b. Maltose
 - c. Glycogen
 - d. A triglyceride**
223. During the freezing process _____ can damage cell walls leading to changes in product texture and quality.
- a. sugar crystals
 - b. salt crystals
 - c. carbon dioxide
 - d. ice crystals**
224. Oil and water separate when mixed together due to the _____ portions of fatty acids in oil.
- a. hydraulic
 - b. hydrophilic
 - c. hydrophobic**
 - d. hydroscopic
225. Of the estimated 10,000 products introduced each year approximately _____ percent will survive in the marketplace.
- a. 1**
 - b. 26
 - c. 50
 - d. 75
226. A list of ingredients must be included on a food label. These ingredients are listed in descending order according to ingredient
- a. bulk
 - b. weight**
 - c. particle size
 - d. volume
227. A mom-and-pop store is a _____
- a. store associated with chains that is smaller than the average supermarket and has limited food and household items
 - b. large self-service retail store commonly associated with chains
 - c. retail outlet that is not part of a chain, but is privately owned and operated**
 - d. store associated with chains that are designed for one-stop shopping

228. An extruder is a piece of equipment commonly used to form _____
- a. meat patties
 - b. crackers
 - c. tortillas
 - d. pasta**
229. _____ was the first person to develop frozen foods on a commercial basis.
- a. H. Benjamin
 - b. Clarence Birdseye**
 - c. Mark Labrador
 - d. Colonel Sanders
230. Retail marketing of meat was revolutionized with the introduction of _____ in the 1960's.
- a. carcasses on the rail
 - b. irradiated meat
 - c. boxed meat**
 - d. MAP packaged meat
231. The _____ are the major parts of a wheat kernel.
- a. germ, bran, endosperm and husk**
 - b. germ, bran and endosperm
 - c. fiber, germ bran and husk
 - d. oil, bran, endosperm and hull
232. A plant employee that wears street shoes in a food manufacturing facility is not following
- a. HACCP
 - b. GSP's
 - c. OMP's**
 - d. SSOP's
233. Carbonation in soft drinks is commonly achieved by adding
- a. sodium bicarbonate
 - b. sodium carbonate**
 - c. calcium carbonate
 - d. carbon dioxide
234. The use of food additives in U.S. food products is regulated by the _____
- a. U.S. Food and Drug Administration**
 - b. U.S. Department of Agriculture Food Safety and Inspection Service
 - c. U.S. Department of Commerce
 - d. U.S. Environment Protection Agency

235. Removing all of the visible dirt, grime, grease and food particles in a food processing facility is called _____
- a. sanitizing
 - b. cleaning**
 - c. cleaning and sanitizing
 - d. dry pick-up
236. *Listeria monocytogenes* is a bacteria that grows at refrigeration temperatures and is considered to be a _____
- a. refrigerophile
 - b. psychrophile**
 - c. mesophile
 - d. therinophile
237. An ingredient statement for a food product states that the food contains ‘flour, starch, salt, flavorings, MSG and BHT. MSC is considered to be a _____
- a. flavoring agent
 - b. colorant
 - c. anticaking agent
 - d. flavor enhancer**
238. Casein in milk is an example of a _____
- a. solid in liquid where the liquid is the dispersed phase and the solid is the continuous phase
 - b. gas in liquid where the gas is the dispersed phase and the liquid is the continuous phase
 - c. gas in liquid where the liquid is the dispersed phase and the gas is the continuous phase
 - d. solid in liquid where the solid is the dispersed phase and the liquid is the continuous phase**
239. Oil is heated and reaches a temperature when small free fatty acids are volatized. This is called the _____
- a. melting point of fat
 - b. smoke point
 - c. flash point
 - d. fire point
240. To produce sauerkraut, cabbage undergoes a _____ process.
- a. fermentation**
 - b. drying
 - c. freezing
 - d. cold sterilization

241. An antioxidant is added to food products to _____
- a. slow protein oxidation which causes rancidity
 - b. slow lipid oxidation which causes caramelization
 - c. inhibit the Maillard reaction
 - d. slow lipid oxidation which causes rancidity**
242. Essential amino acids _____
- a. are produced in our body through biochemical pathways
 - b are only acquired through dietary intake**
 - c. are not necessary for survival
 - d. are available in protein free foods
243. _____ is the number of degrees Fahrenheit required for a specific thermal death time curve to pass through one log cycle, or achieve 90% destruction.
- a. D-value
 - b. F-value
 - c. L-value
 - d. Z-value
244. Canning food products is a method of _____
- a. preservation**
 - b. deterioration
 - c. pasteurization
 - d. aseptic processing
245. An example of a food attribute would be the _____
- a. flavor of a chocolate bar
 - b. color of meat
 - c. texture of a tomato
 - d. all of the above**