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1. During the milling process of brown rice, a by-product called “brokens” are produced. While “brokens” are used for a variety of things, it is mostly used for the production of _____.
 - a. beer
 - b. cereal
 - c. rice flour
 - d. fertilizer
2. A food scientist is analyzing multiple published research studies to determine which ingredient would provide the best functionality for a product. When the results of several individual studies are pooled to yield an overall conclusion, it is called _____.
 - a. coherent-analysis
 - b. a cumulative frequency distribution
 - c. meta-analysis
 - d. a correlation coefficient
3. Food products formulated to have a pH ≤ 4.6 will inhibit toxin production by _____.
 - a. *Staphylococcus aureus*
 - b. *Clostridium botulinum*
 - c. *Listeria monocytogenes*
 - d. *Salmonella*
4. Oils high in polyunsaturated fatty acids _____ than oils high in monounsaturated fatty acids.
 - a. will have lower melting points
 - b. will have more hydrogen atoms
 - c. are more dense
 - d. have more trans fatty acids
5. _____ is bright orange in color and found in foods from plant sources.
 - a. Retinol
 - b. Beta-carotene
 - c. Ergocaliciferol
 - d. Cobalamin

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6. To keep chocolate from settling out of chocolate milk, _____ are added.
 - a. antioxidants
 - b. foaming agents
 - c. gelling agents
 - d. stabilizers
7. A _____ is a dye, pigment or other substance, which is capable of imparting color when added or applied to a food.
 - a. color additive
 - b. colorant
 - c. secondary direct food additive
 - d. processing aid
8. _____ contribute(s) to bitter flavors in tea and coffee.
 - a. Caproic and caprylic fatty acid ethyl esters
 - b. Carotenoids
 - c. Trans 2-hexenal
 - d. Polyphenols
9. The GRAS list is continually under constant revision. FDA recommends Class 5 ingredients _____.
 - a. be considered safe at present and anticipated levels of use
 - b. be safe at current use levels but evaluate if an increase in use could be hazardous
 - c. have restricted use and require more research
 - d. be removed from the GRAS list
10. High levels of mercury in a fish product is considered a _____ hazard.
 - a. biological
 - b. physical
 - c. chemical
 - d. radiological

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11. It is the responsibility of the _____ to ensure that all ingredients used are of food-grade purity and comply with specifications and limitations in all applicable authorizations.
- FDA
 - USDA FSIS
 - manufacturer of any food
 - FFDCA
12. Which is a true statement?
- A food with a higher fat content will freeze slower than a similar food with a lower fat content
 - Increase airflow in a freezer decreases freezing rate of food
 - The thinner a product is, the longer it will take to freeze in the center
 - Water conducts heat away from food slower than fat
13. An iridescent look on the surface of slices meat means ____.
- the quality has declined in the product
 - there are pigments in meat compounds causing iridescence when exposed to heat and processing
 - there is a safety concern and the meat should not be consumed
 - oil has been spread on the meat surface
14. A _____ like compound made of short- and long-chain acid triglyceride molecules is known by the acronym SALATRIM.
- protein
 - fat
 - starch
 - sweetener
15. Microbes that require high salt concentrations to function are called _____ and are used to make bean cakes in Asia.
- halophilic
 - psychrotrophic
 - thermophilic
 - mesophilic
16. Gluten is a protein made up of _____ that provides texture to bread.
- glutenin and gliadin

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- b. globulin and albumin
 - c. glutenin and globulin
 - d. gliadin and albumin
17. When analyzing product texture, _____ refers to how well one part of a food slides past another without breaking.
- a. firmness
 - b. brittleness
 - c. graininess
 - d. chewiness
18. The complete destruction of all microbes in food processing is completed through _____.
- a. blanching
 - b. pasteurization
 - c. sterilization
 - d. commercial sterilization
19. The temperature range in which most bacteria can grow, also known as the danger zone, is defined by the FDA as _____.
- a. 70°F-120°F
 - b. 85°F-115°F
 - c. 55°F-125°F
 - d. 40°F-140°F
20. A food processor is using water as part of a product formulation. GMPs require that this water be suitable or safe for drinking. This is also known as _____ water.
- a. sanitary
 - b. palatable
 - c. comestible
 - d. potable
21. Food scientists recently developed a MRE pizza having at least a three-year shelf life for the military. What does MRE mean?
- a. military ready to eat
 - b. meal ready to eat
 - c. meal real time eating
 - d. military ready to export

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22. In the baking industry, proteases _____ gluten, enabling dough to rise faster.
- a. conjugate
 - b. agglomerate
 - c. bind
 - d. hydrolyze
23. The process of piercing meat with needles or sharp blades to break up muscle fibers is called _____.
- a. grinding
 - b. mechanical tenderization
 - c. emulsification
 - d. tumbling
24. Ground beef turns from a bright cherry red color to brown or _____ due to prolonged exposure to oxygen.
- a. myoglobin
 - b. deoxymyoglobin
 - c. oxymyoglobin
 - d. metmyoglobin
25. Which of the following sugars is not an example of a monosaccharide?
- a. galactose
 - b. fructose
 - c. maltose
 - d. glucose
26. Milk chocolate must contain at least _____ cocoa liquor.
- a. 10%
 - b. 20%
 - c. 35%
 - d. 45%
27. Which of the following is an example of a non-newtonian fluid?
- a. water
 - b. olive oil
 - c. corn starch suspension
 - d. vinegar

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28. To carry out certain provisions of the _____, food facilities that manufacture, process, pack, or hold food are required to be registered.
- FDA
 - FSMA
 - Bioterrorism Act
 - Food, Drug, and Cosmetic Act
29. The functionality of carrageenan in a gummy bear is to provide _____.
- flavor
 - texture
 - color
 - antimicrobial activity
30. _____ are poisonous substances produced by certain molds found primarily on grain and nut crops, but may also be on celery, grape juice, and apples.
- Scrombrotoxins
 - Ipomeamarones
 - Mycotoxins
 - Ciguatera toxins
31. _____ are (is) commonly used in soft drinks to stop the growth of yeast and bacteria.
- Sulfites
 - Humectants
 - Benzoic acid
 - Calcium propionate
32. A small amount of gelatin may be added to beer and processed apple juice to complex with _____ that can cloud these beverages; the complex is then filtered out.
- terpenes
 - isocyanates
 - saponins
 - tannins
33. The reaction between proteins and carbohydrates that causes food to brown is called _____.
- the Maillard reaction

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- b. caramelization
 - c. crystallization
 - d. proteolysis
34. Foodborne illness may occur if a food plant employee is a carrier of _____, a predominant bacterial species normally present on the skin.
- a. *E. coli* O157:H7
 - b. *Salmonella* sp.
 - c. *Staphylococcus aureus*
 - d. *Campylobacter jejuni*
35. When a company sanitizes equipment or a processing area, they are _____.
- a. physically removing soil from the surface
 - b. treating with heat or chemicals to reduce the number of microbes present
 - c. implementing a dry pick up of debris
 - d. treating so the equipment and processing area are free from all living microbes
36. A company is formulating a new food product labeled as low fat. This means _____.
- a. the amount of fat is nutritionally trivial
 - b. it contains 3 g of fat or less per serving or 100 g of food
 - c. it has no more than 25% of the fat of a comparable food
 - d. it has less than 0.5 g of fat per serving
37. Which of the following is not a true statement?
- a. Naturally occurring sugars have a different caloric content than commercially produced sugars
 - b. Table sugar (white granulated sugar) is primarily produced from sugar cane and sugar beets
 - c. Lactose only occurs in milk
 - d. Fructose is the sweetest of naturally occurring sugars
38. Food product dating is _____.
- a. required for all food products
 - b. required for all meat products
 - c. required for all infant formulas
 - d. required for all products that are consumed, regardless of product type

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39. Which of the following is not a true statement?
- a. Syneresis is leakage of water from a gel
 - b. Syneresis can toughen food
 - c. Syneresis can dry food
 - d. Syneresis is due to ice sublimation
40. Prior to 1991, _____ solder was commonly used to seal the seams on tin cans for food.
- a. steel
 - b. tin
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41. The measure of water vapor in air, also known as _____, affects the storage shelf life of perishable foods.
- a. humidity
 - b. dew point
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 - d. partial pressure
42. Which of these sugars does not form crystals allowing it to be blown and spun into sugar creations?
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 - b. Honey
 - c. Sorghum syrup
 - d. Xylitol
43. Heat sensitive products such as milk, eggs, and protein powders are usually dried using _____ drying to reduce nonenzymatic browning and caramelization of the finished product.
- a. tray
 - b. belt
 - c. drum
 - d. spray
44. The USDA FSIS ensures that _____ is wholesome, safe, and properly labeled.
- a. meat, poultry, and seafood
 - b. meat, poultry, and the processed egg supply
 - c. meat, poultry, and shellfish

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- d. meat, poultry, and the shell egg supply
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46. Prions from cattle are believed to be responsible for a rare disease called ____ in humans.
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48. _____ conditions are necessary for a foam to remain stable.
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49. _____ aid(s) in the extraction of oil from olives.
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50. Eggs labeled “free-range” means that the eggs were produced from chickens that were raised _____.
- a. inside houses without cages
 - b. inside houses with access to the outside

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- c. by feeding organic feed
- d. without the use of antibiotics

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- a. meat, poultry, and seafood
 - b. meat, poultry, and the processed egg supply
 - c. meat, poultry, and shellfish
 - d. meat, poultry, and the shell egg supply
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- a. inside houses without cages
 - b. inside houses with access to the outside
 - c. by feeding organic feed
 - d. without the use of antibiotics