This exam is released without an answer key at the request of the committee. All questions are taken from the references as listed in the Food Science and Technology CDE handbook.

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

This exam is released without an answer key at the request of the committee. All questions are taken from the references as listed in the Food Science and Technology CDE handbook.

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

This exam is released without an answer key at the request of the committee. All questions are taken from the references as listed in the Food Science and Technology CDE handbook.

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.
    a. FDA
    b. USDA FSIS
    c. manufacturer of any food
    d. FFDCA

12. Which is a true statement?
    a. A food with a higher fat content will freeze slower than a similar food with a lower fat content
    b. Increase airflow in a freezer decreases freezing rate of food
    c. The thinner a product is, the longer it will take to freeze in the center
    d. Water conducts heat away from food slower than fat

13. An iridescent look on the surface of slices meat means ____.
    a. the quality has declined in the product
    b. there are pigments in meat compounds causing iridescence when exposed to heat and processing
    c. there is a safety concern and the meat should not be consumed
    d. 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.
    a. protein
    b. fat
    c. starch
    d. sweetener

15. Microbes that require high salt concentrations to function are called _____ and are used to make bean cakes in Asia.
    a. halophilic
    b. psychrotrophic
    c. thermophilic
    d. mesophilic

16. Gluten is a protein made up of ____that provides texture to bread.
    a. glutenin and gliadin

This exam is released without an answer key at the request of the committee. All questions are taken from the references as listed in the Food Science and Technology CDE handbook.

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

This exam is released without an answer key at the request of the committee. All questions are taken from the references as listed in the Food Science and Technology CDE handbook.

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 <u>not</u> 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

This exam is released without an answer key at the request of the committee. All questions are taken from the references as listed in the Food Science and Technology CDE handbook.

28. To carry out certain provisions of the _____, food facilities that manufacture, process, pack, or hold food are required to be registered.
    a. FDA
    b. FSMA
    c. Bioterrorism Act
    d. Food, Drug, and Cosmetic Act

29. The functionality of carrageenan in a gummy bear is to provide _____.
    a. flavor
    b. texture
    c. color
    d. 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.
    a. Scrombrotoxins
    b. Ipomeamarones
    c. Mycotoxins
    d. Ciguatera toxins

31. _____ are (is) commonly used in soft drinks to stop the growth of yeast and bacteria.
    a. Sulfites
    b. Humectants
    c. Benzoic acid
    d. 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.
    a. terpenes
    b. isocyanates
    c. saponins
    d. tannins

33. The reaction between proteins and carbohydrates that causes food to brown is called _____.
    a. the Maillard reaction

This exam is released without an answer key at the request of the committee. All questions are taken from the references as listed in the Food Science and Technology CDE handbook.

b. carmelization
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 <u>not</u> 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

This exam is released without an answer key at the request of the committee. All questions are taken from the references as listed in the Food Science and Technology CDE handbook.

39. Which of the following is <u>not</u> 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
    c. aluminum
    d. lead

41. The measure of water vapor in air, also known as _____, affects the storage shelf life of perishable foods.
    a. humidity
    b. dew point
    c. water activity
    d. partial pressure

42. Which of these sugars does not form crystals allowing is to be blown and spun into sugar creations?
    a. Isomalt
    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 carmelization of the finished product.
    a. tray
    b. belt
    c. drum
    d. spray

44. The UDSA 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

This exam is released without an answer key at the request of the committee. All questions are taken from the references as listed in the Food Science and Technology CDE handbook.

d. meat, poultry, and the shell egg supply

45. Packaging materials for food products are regulated by the ____.
    a. FDA
    b. FSIS
    c. EPA
    d. CDC

46. Prions from cattle are believed to be responsible for a rare disease called _____ in humans.
    a. mad cow disease
    b. variant Creutzfeldt-Jakob disease
    c. bovine spongiform encephalopathy
    d. prion disease

47. The _____ is a handbook available through the FDA that provides current information about the major known agents that cause foodborne illness.
    a. Microbiological Specifications of Food Pathogens
    b. Microorganisms in Food
    c. The Microbiology of Safe Food
    d. Bad Bug Book

48. _____ conditions are necessary for a foam to remain stable.
    a. Two
    b. Three
    c. Four
    d. Five

49. _____ aid(s) in the extraction of oil from olives.
    a. Cellulase
    b. Amyloglucosidase
    c. Pectic enzymes
    d. Catalase

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

This exam is released without an answer key at the request of the committee. All questions are taken from the references as listed in the Food Science and Technology CDE handbook.

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