1) Milk provides _________ and ____________ in approximately the same ratio as found in bone.
   a. Calcium and Magnesium  
   b. **Calcium and Phosphorus**  
   c. Calcium and Iron  
   d. Phosphorus and Magnesium

2) About ____________ percent of the calcium available in the food supply is provided by milk and milk products.
   a. 66%  
   b. **76%**  
   c. 86%  
   d. 96%

3) The pasteurized Milk Ordinance regulates what?
   a. **Grade A milk**  
   b. Manufacturing grade milk  
   c. Grade B milk  
   d. Grade C milk

4) According to the Food & Nutrition Board of the National Academy of Sciences, all people need at least _________ milligrams of calcium per day.
   a. 100  
   b. **1000**  
   c. 10,000  
   d. 100,000

5) Farm water supplies must be protected from surface contamination. Water is usually tested for ____________ as an indicator of possible sewage contamination.
   a. Proteolytic bacteria  
   b. Lipolytic bacteria  
   c. **Coliform bacteria**  
   d. Psychotropic bacteria
6) Chemical sanitizers containing __________ are most widely used for sanitizing milking equipment.

a. Bromine  
b. Saline  
**c. Chlorine**  
d. Iodine

7) Milk is a good supplier of minerals except for _____.

**a. Magnesium-Iron-Manganese-Copper**  
b. Riboflavin-Magnesium-Lactose-Manganese  
c. Phosphorus-Copper-Zinc-Calcium  
d. Potassium-Boron-Iron-Calcium

8) Adulterants of milk that are detrimental to human health are _____.

a. Proteins  
**b. Pesticides**  
c. Water  
d. Minerals

9) Milk with low total solids will produce what off-flavor?

a. Flat  
b. Malty  
c. Salty  
d. Acid

10) Milk is the only source of __________ in nature.

a. Calcium  
b. Phosphorous  
**c. Lactose**  
d. Fatty acids

11) The ideal cleaning material for removing milk stone from milking equipment surfaces is _____.

**a. Acidic detergent**  
b. Phosphate  
c. Surfactant  
d. Chelate
12) The ability of lipase in milk to attack milk fat and produce a rancid off flavor is enhanced by:

a. **Excessive agitation of warm raw milk**
b. Poorly cleaned milking equipment
c. Exposing milk to sunlight
d. Feeding cows moldy hay

13) __________ cause(s) off flavors in milk such as acid, high acid, or sour milk.

a. Chemical adulterants
b. **Microorganisms**
c. Sediment
d. Weeds

14) Aflatoxins sometimes found in dairy feeds are produced by:

a. Protozoa
b. Bacteria
c. **Mold**
d. Yeasts

15) With the exception of ________, all of the following off flavors of milk are caused by bacteria.

a. Bitter
b. Malty
c. Yeasty
d. **Salty**

16) The Grade A Pasteurized Milk Ordinance (PMO) specifies requirements for the production of Grade A raw milk for pasteurization and is recommended by _________.

a. **The Food and Drug Administration**
b. The Small Business Administration
c. The U.S. Department of Agriculture
d. The National Committee on Milk

17) The largest percentage of the U.S. milk supply is utilized in the production of _______.

a. Cream and specialty sales
b. **Cheese**
c. Frozen dairy desserts
d. Evaporated, condensed and dry products
18) One objective of a federal order is to _________________.
   a. Assure all dairy farmers an adequate income
   b. **Assure consumers an adequate supply of pure, wholesome milk**
   c. Assure that all dairy plants receive an adequate supply of milk
   d. Prevent surpluses of milk in the marketplace

19) Cheddar cheeses sold in the United States, which are not made from pasteurized milk, must be ripened at least ________ days.
   a. 30
   b. **60**
   c. 120
   d. 150

20) Flavors of milk may be caused in general by _________________.
   a. Water content of the milk
   b. Temperature that milk is stored
   c. **Feeds consumed by the cow**
   d. Amount of sun light the cow receives

21) The major cause of the salty flavor in milk is ____________.
   a. The large intake of salt by the cow
   b. Associated with sunlight exposure
   c. **Mastitis**
   d. Bacteria

22) Mastitis in milk _____________.
   a. **Has a direct effect on cheese yield**
   b. May cause increased rancidity
   c. Decreases calcium content
   d. Increases protein content

23) The four primary taste sensations are _________________.
   a. Bitter, metallic, sour, sweet
   b. **Bitter, salt, sour, sweet**
   c. Metallic, salt, sour, sweet
   d. Burnt, bitter, salt, sour
24) Lactose is the principal ________ in milk.

a. Fat  
b. Protein  
c. **Carbohydrate**  
d. Mineral

25) A consumer found an off-flavor in milk packaged in transparent plastic and exposed to high intensity fluorescent light. The off-flavor probably was

a. High acid  
b. Bitter  
c. **Oxidized**  
d. Rancid (lipolyzed)

26) Which group of flavors cannot be detected by odor?

a. Bitter, salty  
b. High acid, rancid  
c. Feed, garlic/onion  
d. Metallic/oxidized, malty

27) ________ is the time after processing during which a dairy product normally remains suitable for human consumption.

a. Code date  
b. Product life  
c. Package date  
d. **Shelf date**

28) The off flavor most likely to be found in milk that has not been cooled properly is:

a. **Sour**  
b. Rancid  
c. Oxidized  
d. Bitter

29) The Babcock test is a rapid, simple and accurate test for:

a. Water in milk  
b. Titratable acidity  
c. **Fat content**  
d. Nonfat milk solids content
30) It takes approximately ______ lbs. of whole milk to make one pound of whole milk cheddar cheese.
   a. 5  
   b. 10  
   c. 13  
   d. 22 

31) Cow’s milk contains _____ percent lactose.
   a. Three  
   b. Four  
   c. Five  
   d. Six 

32) For the maximum intake of calcium, one should consume_______.
   a. Whole Milk 
   b. 2% Milk  
   c. 1% Milk  
   d. Skim Milk  

33) The fat in one serving of whole milk (8 ounces) provides ______ calories.
   a. 85  
   b. 90  
   c. 95  
   d. 100 

34) The most prevalent off flavor of fluid milk is ______.
   a. Malty  
   b. Oxidized  
   c. Flat  
   d. Feed  

35) Pasteurization is the process of heating every particle of milk and milk products to the minimum required ______ and holding it continuously for the minimum required ______ in equipment that is properly designed and operated.
   a. Temperature and length  
   b. **Time and temperature**  
   c. Temperature and time  
   d. Time and length
36) The major reason milk from cows treated with antibiotics must be withheld from the milk supply is because _______.

a. A large proportion of the human population is sensitive to antibiotics
b. Antibiotics increase the somatic cell count of milk
c. Antibiotics cause an off-flavor in milk
d. Antibiotics kill some of the good bacteria found in milk

37) A high acid flavor (sour) in milk is caused by _______.

a. Growth of bacteria in the milk
b. Exposure of cows to acid rain
c. Drinking hard water
d. Absorption of acid from corn silage

38) The enzyme _______ is almost completely inactivated during pasteurization.

a. Lactose
b. Acid glycerol
c. Alkaline phosphatase
d. Free fatty acids

39) The absence of _____ and _____ is not an accident, because they would catalyze oxidation, their producing metallic or oxidized flavors.

a. Lead-casein
b. Boron-tin
c. Iron-copper
d. Zinc-brass

40) To reduce the feed flavor in milk to acceptable levels, cows should be removed from offending feeds _____ hours before milking.

a. 1-2
b. 2-4
c. 4-6
d. 6-8

41) _____ is the cause of the rancid flavor in milk.

a. Feeding high moisture corn
b. Feeding haylage
c. Storing milk in the sunlight
d. Extreme agitation of raw milk
42) Which of the following does not promote metallic/oxidized off flavor in milk?

a. Hypochlorite sanitizer
b. Sunlight
c. Fluorescent light
d. Copper

43) Whole milk contains _____ percent protein.

a. 1.5-2.5
b. 2.5-3.5
c. **3.5-4.0**
d. 4.0-4.5

44) Which of the following is not an objective of milk evaluation?

a. Determining the presence of desirable characteristics
b. **Determining one brand of milk from another**
c. Determining whether one sample differs from another
d. Determining presence and magnitude of undesirable characteristics

45) Which of the following four primary taste sensations is correctly matched with the causal agent?

a. Salty-sugar
b. **Bitter-quinine**
c. Sweet-lactic acid
d. Sour-table salt

46) The two main proteins in milk are ____ and ____.

a. Lactose, Lactalbumin
b. **Casein, Lactalbumin**
c. Ascorbic, Thiamin
d. Colgate, Casein

47) Vitamin ____ was first discovered in milk fat and is important to eyesight.

a. A
d. D
48) Milk contains all the known vitamins and is an especially good source of ___.
   a. Cyanocobalmin
   b. **Riboflavin**
   c. Ascorbic Acid
   d. Thiamine

49) Milk is a good source of all water-soluble vitamins except for ______.
   a. Cyanocobalmin
   b. Riboflavin
   c. **Ascorbic Acid**
   d. Thiamine

50) __________ is a milk process that makes milk more easily digested by those with a sensitive digestive system.
   a. Ionization
   b. Evaporation
   c. Pasteurization
   d. **Homogenization**

51) __________ amino acids are commonly found in milk proteins, including the essential amino acids.
   a. 7
   b. 12
   c. 14
   d. **19**

52) Summer milk has been estimated to contain 1.6 times as much vitamin ____ as winter milk.
   a. A
   b. B
   c. C
   d. D

53) The hormone oxytocin is released by the ____ gland. This act stimulates the mammary gland.
   a. **Pituitary**
   b. Sweat
   c. Endocrine
   d. Vascular
54) Rubber parts readily absorb ____ and need to be cleaned in an alkaline detergent.

a. Protein  
b. Carbohydrates  
c. **Milk fat**  
d. Minerals

55) The main objection to dirt and milk stone on parts is _____.

a. Vacuum fluctuations  
b. Poor milkers function  
c. Poor looks  
d. **Increased bacterial count**

56) By regulation, milk from cows treated with antibiotics usually must be withheld for ____ hours.

a. **48 –72**  
b. 30 –60  
c. 48 –108  
d. 72 –96

57) Rules developed by the _____ are designed to protect the health and welfare of consumers.

a. United States Department of Agriculture (USDA)  
b. Protein and Lactose Organization (PLO)  
c. Future Farmers of America (FFA)  
d. **Food and Drug Administration (FDA)**

58) The predominant bacteria of milk that produces lactic acid, which is responsible for the sour taste of milk are the:

a. **Streptococci**  
b. Psychrophilic  
c. Coliform  
d. Streptococcus

59) Mixture of milk and cream containing not less than 10.5 percent milk fat, but less than 18 percent milk fat, is the definition of

a. Light whipping cream  
b. Light cream  
c. **Half-and-half**  
d. Heavy cream
60) Under which of the following weather conditions would you expect to observe the greatest decrease in milk yield per cow?

a. Cold and dry
b. Hot and humid
c. Cool and humid
d. Warm and dry

61) Although milk from the cow is processed, it is not an engineered or fabricated food and contains about ________ % solids.

a. 3.5
b. 13
c. 76
d. 87

62) From the mid 1950’s until 2009, the size of the U.S. dairy herd has:

a. Decreased by 50%
b. Remained static
c. Increased by 50%
d. More than doubled mirroring the population growth

63) From the mid 1950’s until 2009, individual production per cow has:

a. Remained static
b. Increased by 50%
c. Increased by 100%
d. Increased by 400%

64) The first milk produced after parturition is called:

a. Colostrum
b. Celestial
c. Serial
d. Coliseum

65) Transitional milk is the label given to the milk produced in:

a. One retail region and moved to another retail region for processing
b. From the Colostrum stage to 11th milking which cannot be legally marketed for human consumption
c. From the truck to the holding silos, not yet in the production cycle
d. Produced at the end of a lactation but before the cow is transitioned into the dried state
66) It requires ______pound(s) of milk to produce one pound of butter.
   a. 1  
   b. 11  
   c. 22  
   d. 33  

67) It requires ______pound(s) of milk to produce one gallon of gourmet ice cream.
   a. 8  
   b. 12  
   c. 16  
   d. 24  

68) To prevent milk fat from separating itself from the fluid portion of the milk is:
   a. Homogenized  
   b. Pasteurized  
   c. Sterilized  
   d. Thermalized  

69) Evaporated milk has been preheated to stabilize the protein, followed by the removal of:
   a. 30% of the water  
   b. 60% of the water  
   c. 90% of the water  
   d. All of the fat  

70) Condensed milk on the grocery shelf may have ______added.
   a. Salt  
   b. Minerals  
   c. Sugar  
   d. Cream  

71) The major difference between Evaporated and Condensed milk is:
   a. Evaporated milk has less water than condensed milk  
   b. Evaporated milk can be stored non-refrigerated, while condensed milk requires refrigeration  
   c. Condensed milk has a lower fat content than evaporated milk  
   d. Condensed milk comes in smaller size containers than evaporated milk
72) Dry milk must have less than _________% moisture by weight.
   a. 5%
   b. 10%
   c. 15%
   d. 25%

73) Dry milk can be stored for long periods of time:
   a. In refrigerated vaults
   b. At temperatures above 150 degrees
   c. In an open container in the cabinet
   d. **In a sealed atmosphere of nitrogen or carbon dioxide**

74) “Cultured” in front of the name of a milk product indicates:
   a. Product is older and more mature
   b. Product is highly refined
   c. **Product has appropriate bacteria added to it**
   d. Product has been through a school and is more expensive

75) A “acidified” label on a milk product indicates that the product was produced by:
   a. **Souring the milk**
   b. Enriching the milk with added iron
   c. Cows consumed acid rain water
   d. Passing the milk through a reverse osmosis filtration system

76) Cottage cheese from the grocery shelf must contain no less than:
   a. .5% fat
   b. 1% fat
   c. 2% fat
   d. **4% fat**

77) Low fat cottage cheese must contain a maximum of:
   a. .5% fat
   b. 1% fat
   c. 2% fat
   d. 4% fat
78) Curd is the _______________ during the cheese making process.

a. A region which supplies substantial components required
b. Material found in the stomach of young calves necessary
c. Liquid portion at the bottom on the container that is hard to dispose of
d. Custard-like substance formed at the top of the container

79) Butter is made from milk and/or cream and must contain a minimum of:

a. 5% fat
b. 20% fat
c. 50% fat
d. **80% fat**

80) Cottage cheese is a soft, un-ripened cheese with approximately _____ moisture content.

a. 20%
b. 50%
c. **80%**
d. 100%

81) Yogurt is manufactured from fresh, whole, low fat or skim milk that is heated before fermentation. However, Federal standards require yogurt to have a minimum of _____ fat.

a. .5%
b. 1%
c. 2%
d. **3.25%**

82) Low-fat yogurt must have a minimum of _____ fat and a maximum of _____ fat.

a. 1%, 4%
b. .5%, 2.5%
c. **.5%, 2%**
d. 1%, 3.25%

83) Cream is a liquid milk product separated from the fluid milk that must contain a minimum of:

a. 4% fat
b. 10% fat
c. 14% fat
d. **18% fat**
84) Heavy cream (whipping cream) contains a minimum milk fat of:

a. 10%
b. 18%
c. 30%
d. **36%**

85) Buttermilk is the product resulting from:

a. Addition of extra fat to raw fluid milk
b. **Removal of the butter (fat particles) from raw fluid milk**
c. Heating of both butter and milk to facilitate the blending of them together
d. Artificial product produced using non-saturated vegetable oils

86) Some soft serve frozen dairy products have replaced milk fat with:

a. Peanut butter
b. Honey
c. Fruits
d. **Vegetable oil**

87) By FDA definition of an imitation product, which of the following is **NOT** true:

a. Taste like the real product it represents
b. **Has the same nutritional value as the real product it represents**
c. Looks like the real product it represents
d. Imitation products are not regulated by the FDA

88) A substitute product by FDA definition meets all of the following statements except:

a. Taste like the real product it represents
b. Has the same nutritional value as the real product it replaces
c. Looks like the real product it represents
d. **Imitation products are not regulated by the FDA**

89) Some dairy food products have a “REAL” seal on the package. This seal cannot be placed on a package that does NOT adhere to the following standards.

a. Produced from U.S. milk
b. Meets federal and state standards
c. Imitation or substitute foods
d. **Produced from NON-organic sources**
90) Osteoporosis may be reduced by consuming adequate quantities of milk and/or milk products. Osteoporosis is the:

a. Inflammation of the skin cells causing hair loss and scaling of the skin
b. Deterioration of the soft tissue in the retina, leading to blurry vision and poor eye sight
c. **Loss of bone mass due to decrease in the bone matrix and minerals**
d. Development of a hard calloused layer of skin upon the sole of the foot
e. c. Several weeks

91) Milk is produced from female’s mammary glands. These mammary glands are examples of a:

a. Adrenal gland
b. Excretory gland
c. Absorbatory gland
d. **Exocrine gland**

92) The secretory tissue within the mammary gland is a grapelike structure called:

a. Alveoli
b. Clitoris
c. Glanus cistern
d. Annular ring

93) Milk must be held at 191 degrees F for ________________ to be considered pasteurized

a. 30 minutes
b. **1 second**
c. 2 seconds
d. 5 minutes

94) When sanitizing milking equipment with water, the temperature must be a minimum of 170 degrees F and the utensils are to be under the flow of water for ____________ minutes.

a. 10
b. 15
c. 1
d. **5**
95) Milk protein allergies are a form of milk intolerance. These generally occur only in infants and is usually outgrown by:

a. 6 month of age  
b. 12 months of age  
c. 18 months of age  
d. **24 months of age**

96) Low levels of the enzyme lactase may lead to lactose intolerance. Symptoms of lactose intolerance include ALL of the following EXCEPT:

a. **Headaches**  
b. Nausea  
c. Diarrhea  
d. Abdominal cramps

97) The maximum moisture content of Cheddar cheese is:

a. 12%  
b. 23%  
c. 30%  
d. **39%**

98) An example of an extra hard cheese is:

a. **Parmesan**  
b. Muenster  
c. Ricotta  
d. Brie

99) To add the mold to the blue cheese it is mainly:

a. **Injected into the cheese**  
b. Grown on the cheese  
c. Mixed in the whey mixture  
d. None of the above

100) What is the average fat content of Brie?

a. 15%  
b. 30%  
c. **45%**  
d. 65%