2021 MN Milk Quality CDE Exam

Milk Production- Exam A section

1. To remove fat from milking equipment an _____ is used.
   a. Alkaline cleaner in hot water
   b. acid cleaner in cold water
   c. acid cleaner in hot water
   d. alkaline cleaner in cold water

2. _____ is not normally in the top 3 states in milk production per cow per year.
   a. Indiana
   b. Arizona
   c. Colorado
   d. Washington

3. Compared to a Holstein cow, the average Jersey cow produces _____ on a per-gallon of milk basis.
   a. more fat and total milk solids
   b. more fat but less total milk solids
   c. less fat but more total milk solids
   d. less fat and total milk solids

4. Infectious mastitis microorganisms almost invariably gain entrance to the mammary glad via a _____.
   a. blind quarter
   b. suspensory ligament
   c. streak canal
   d. caudal base

5. Adulterants of milk that are detrimental to human health are _____.
   a. proteins
   b. pesticides
   c. minerals
   d. water

6. The major reason milk from cows treated with antibiotics must be withheld from the milk supply is because _____.
   a. antibiotics increase the somatic cell count of milk
   b. antibiotics kill some of the good bacteria found in milk
   c. some humans are sensitive to antibiotics
   d. antibiotics cause an off-flavor in milk

7. A bulk milk hauler detected a sour odor from the raw milk in a farm bulk tank. Upon further examination he/she is likely to find _____.
   a. butter particles floating on the milk
   b. a high freezing point of the milk
   c. a high titratable acidity
   d. the milk has been exposed to a santitizer

8. To reduce the feed flavor in milk to acceptable levels, cows should be removed from the offending feeds a minimum of _____ hours prior to milking

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

9. The total supply of milk is directly influenced by the _____.
   a. prices paid to milk producers
   b. number of manufacturing plants
   c. amount of foreign exports
   d. cost of fat production

10. The California Mastitis Test (CMT) asks that you use only the _____.
   a. colostrum
   b. first stream during milking
   c. 2nd stream during milking
   d. milk after dry-off

11. `A milking machine applies a _____ to the end of the teat to remove milk.
   a. increased pressure
   b. vibration
   c. vacuum
   d. massaging action

12. The absence of _____ in milk is not an accident, since they would catalyze oxidation, producing metallic or oxidized flavors.
   a. boron and tin
   b. zinc and brass
   c. lead and casein
   d. iron and copper

13. Cold storage of milk results in _____.
   a. stoppage of all bacterial growth
   b. killing of all microorganisms
   c. slowing of bacterial growth
   d. killing of all bacteria

14. Federal definitions and standards of identity specify that whole milk contain not less than _____ percent milk fat and _____ percent solids-non-fat.
   a. 3.25, 8.25
   b. 3.00, 8.25
   c. 3.50, 8.00
   d. 3.50, 8.50

15. Milk with low total solids will produce a(n) _____ off-flavor.
   a. malty
   b. acid
   c. flat
   d. salty

16. The national average milk production per cow is approximately _____ pounds per year.
   a. 24,400
   b. 21,700
   c. 17,700
   d. 15,200

17. The California Mastitis Test (CMT) should be read within _____ seconds after mixing.
   a. 40
   b. 20
   c. 10
   d. 30

18. The _____ is the length of time after processing during which a dairy product normally remains suitable for human consumption.
    a. shelf date
    b. code date
    c. product life
    d. package date

19. The hormone oxytocin is released by the _____ gland. This release stimulates the mammary gland.
    a. endocrine
    b. pituitary
    c. sweat
    d. hypothalamus

20. When cows have mastitis, the protein content of the milk may be higher, but the cheese yield is lower because of a decrease in the _____.
    a. alysine
    b. casein
    c. tryptophan
    d. whey

21. By using a _____ with plastic beads of varying density, nonfat solids in milk can be reapidly estimated.
    a. lactometer
    b. humidoscope
    c. polyscope
    d. hydrometer

22. The total dollars a dairy has in assets divided by the number of cows determines the _____.
    a. debt to asset ratio
    b. total investment per cow
    c. owner equity
    d. debt per cow

23. Onion and garlic exposure is responsible for the garlic/onion off-flavor in milk, and is more prevalent in pastures during the _____.
    a. winter
    b. spring
    c. early spring and late fall
    d. fall

24. Salmonellosis infections are most common in cows that have calved within _____.
    a. 2 days
    b. 50 days
    c. 20 days
    d. 10 days

25. The most effective and economical means of reducing the exposure of cows to mastitis-causing microorganisms is to _____.

    a. wear rubber or plastic gloves during milking and disinfect the gloves between cows
    b. isolate animals with clinical mastitis
    c. disinfect or sterilize milking machine inflations between cows
    d. use a bactericide for disinfecting the teats after milking.

26. The _____ legislation made farm cooperatives legal.
    a. Barkley Act
    b. Sherman Act
    c. Buckley Act
    d. Capper-Volstead Act

27. Federal Milk Marketing Orders are a mechanism for _____.
    a. economical transportation of milk
    b. finding a market for every producer's milk
    c. economical utilization of milk
    d. market stabilization

28. A form of mastitis that is hidden from sight is known as _____ mastitis.
    a. clinical
    b. sub-clinical
    c. infectious
    d. acute

29. Poor quality forage will cause a significant decrease in _____.
    a. casein percentage
    b. bacteria counts
    c. fat percentage
    d. somatic count

30. To be labeled "made with organic ingredients" a dairy product must contain a minimum of _____ percent organic ingredients.
    a. 100
    b. 90
    c. 70
    d. 80

Milk Marketing- Exam B section

31. Butter will begin to lose some of its natural flavor after _____ at refrigerated temperatures.
    a. 1 year
    b. 6 months
    c. 2 years
    d. 2 months

32. Whole milk contains _____ percent protein.
    a. 4.0-4.99
    b. 1.0-1.99
    c. 3.0-3.99
    d. 2.0-2.99

33. The minimum fat content of cheddar cheese is _____ percent.

    a. 50
    b. 33
    c. 20
    d. 40

34. Operating costs for Federal Milk Orders are paid by the _____,
    a. milk handlers
    b. Federal Government
    c. milk producers
    d. State Department of Agriculture

35. Mastitis in milk _____.
    a. decreases calcium contect
    b. has a direct effect on cheese yield.
    c. increases protein content.
    d. may cause increased rancidity.

36. Federal Milk Orders only regulate _____,
    a. farmer
    b. retail store owners
    c. truckers
    d. handlers

37. One gallon of milk weighs approximately _____ pounds.
    a. 7.8
    b. 8.6
    c. 5.5
    d. 10.1

38. Milk marketed as low-fat milk has no more than _____ percent milk fat.
    a. 3.25
    b. 1
    c. 2
    d. 2.5

39. Federal milk marketing orders regulate the sale of _____ milk.
    a. Grade A
    b. Grades A, B and C
    c. Grade C
    d. Grade B

40. Heavy cream (whipping cream) contains a minimum of milk fat of _____ percent.
    a. 36
    b. 18
    c. 10
    d. 30

41. The United States Government purchases surplus _____ from the commercial market under the dairy price support program.
    a. fluid milk products, butter, cheese
    b. butter, evaporated milk, ice cream
    c. ice milk yogurt, cottage cheese
    d. cheese, nonfat dry milk, butter

42. By FDA definition, an imitation product does not have to _____ the real product it represents.

    a. have the same nutritional value as
    b. taste like
    c. looks like
    d. smell like

43. A consumer found an off-flavor in milk packaged in transparent plastic jugs exposed to high intensity fluorescent light. The off-flavor probably was _____.
    a. malty
    b. oxidized
    c. rancid
    d. high acid

44. A cheese which did not originate in Italy is _____.
    a. muenster
    b. parmesan
    c. provolone
    d. mozzarella

45. Mozzarella makes up nearly _____ percent of the total cheese production in the U.S.
    a. 28
    b. 43
    c. 34
    d. 22

46. Milk used to make ice cream would be priced in a Federal Order class _____.
    a. IV
    b. II
    c. I
    d. III

47. An example of an unripen variety of cheese is _____.
    a. parmesan
    b. bleu
    c. cream
    d. brie

48. Milk is _____ to prevent milk far from separating itself from the fluid portion of the milk.
    a. pasteurized
    b. homogenized
    c. sterilized
    d. thermalized

49. Dairy farmers receive _____percent of the retail sale price of a half-gallon of milk?
    a. 6
    b. 46
    c. 26
    d. 16

50. Milk that has been ultra-parteurized is heated to _____F or above for _____ seconds.
    a. 280, 2
    b. 212, 3
    c. 260, 2
    d 191, 2

51. There are _____ Federal Milk Marketing Order in the United States.

    a. more than 30
    b. ten
    c. 50 – one per state
    d. 48 – number of states with the continental limits

52. Milk becomes the property of the buyer once _____.
    a. the transport truck leaves the farm
    b. the transport truck reaches the plant
    c. it is loaded into the transport truck on the farm
    d. it is unloaded into the processor's bulk tanks

53. The worlds leading dairy exporter is _____.
    a. United States
    b. European Union (EU)
    c. New Zealand
    d. China

54. Cheddar cheese sold in the United States, made from unpasteurized milk, must be ripened at least _____ days.
    a. 120
    b. 150
    c. 30
    d. 60

55. The average per capita consumption per year of _____ is about 32 pounds.
    a. butter
    b. fluid milk products
    c. cheese
    d. ice cream

56. Fluid milk accounts for _____ percent of the U.S. milk supply.
    a. 20
    b. 22
    c. 15
    d. 25

57. The Standard of Identity for ice cream requires that it contain a minimum of _____ percent milk fat.
    a. 12
    b. 14
    c. 10
    d. 16

58. Cottage cheese is a solf, unripened cheese with approximately _____ percent moisture content.
    a. 40
    b. 20
    c. 80
    d. 60

59. Milk contains all the known vitamins and is an especially good source of _____.
    a. riboflavin
    b. cyanocobalmin
    c. thiamine
    d. ascorbic acid

60. Average milk prices are the lowest in the _____.

    a. spring
    b. winter
    c. fall
    d. summer

FFA Milk Quality CDE Problem Solving
100 Points (5 points per Question)

Use the March 2021 Hoard's Dairyman articles to answer the following questions.

1. In 2020, of top 10 states ranked by dairy farm numbers, which state had the largest % loss of dairy farms?
   A. Wisconsin
   B. Minnesota
   C. California
   D. Ohio
   E. Michigan

2. What was the number of licensed U.S. dairy farms that held permits to sell milk in the U. S. in 2020?
   A. 29,758
   B. 31,651
   C. 34,207
   D. 43,281
   E. 44,291

3. What was the percentage change of licensed U. S. dairy farms in 2020?
   A. – 3.2
   B. – 4.7
   C. – 5.8
   D. – 6.4
   E. – 7.5

4. From 1992 to 2020 how many licensed U. S. dairy farms have left the milking business?
   A. 71,809
   B. 76,975
   C. 84,012
   D. 97,322
   E. 99,852

5. Which U. S. region lost the largest percentage of dairy farms in 2020?
   A. All regions lost the same amount.
   B. Midwest
   C. Northeast
   D. Southeast
   E. West

6. The U. S. average herd size in 2020 was:
   A. 196 cows
   B. 206 cows
   C. 273 cows
   D. 297 cows
   E. 324 cows

7. Which U. S. region had an average of 257 cows per herd in 2020?
   A. All regions averaged the same.
   B. Midwest
   C. Northeast
   D. Southeast
   E. West

8. Which region had the lowest decrease (% change) in the number of dairy farms in 2020?
   A. Northeast
   B. West
   C. Southeast
   D. Midwest
   E. All regions were the same

9. Minnesota lost how many dairy farms in 2020?
   A. 120
   B. 190
   C. 250
   D. 296
   E. 380

10. The state that lost the most dairy farms in 2020 was:
    A. Pennsylvania
    B. Wisconsin
    C. California
    D. New York
    E. Minnesota

11. Nationally, milk production rose _____ percent in 2020.
    A. 0.4
    B. 1.1
    C. 1.4
    D. 2.2
    E. 3.1

12. The U. S. had an average lbs. milk per cow of _____ pounds in 2020.
    A. 19,841
    B. 21,869
    C. 22,258
    D. 23,391
    E. 23,777

13. California's 2020 milk production output was _____ million pounds more than any other state.
    A. 9,478
    B. 9,963
    C. 10,552
    D. 12,375
    E. 13,425

14. The U. S. total milk output in 2020 was about:
    A. 223.2 thousand pounds
    B. 223.2 million pounds
    C. 223.2 billion pounds
    D. 223.2 trillion pounds
    E. Cannot be determined

15. Minnesota had how many milk cows in 2020?
    A. 99,931
    B. 100,108
    C. 144,800
    D. 447.000
    E. 565,000

16. Which state had the most milk produced per person in 2020?
    A. Rhode Island
    B. Wyoming
    C. New Jersey
    D. Michigan
    E. Alaska

17. Which state had the most new milk production in 2020?
    A. Michigan
    B. Colorado
    C. Georgia
    D. Texas
    E. Missouri

18. The U.S. produced enough milk to supply each U. S. person _____ pounds in 2020?
    A. 626
    B. 643
    C. 668
    D. 679
    E. 712

19. Which state produced the most milk per person based on its state's population in 2020?
    A. Vermont
    B. New Mexico
    C. California
    D. Wisconsin
    E. Idaho

20. Which state was a net importer of dairy products in 2020 (300 to 600 pounds)?
    A. Utah
    B. Kansas
    C. Colorado
    D. Nebraska
    E. South Dakota

Milk Flavor- Use the bottom section of page 2 of the e-scantron

Be sure to mark the defect and score for each sample

1. Milk sample was from a clear glass container that was placed in the front of the fridge at the convenience store and then left in the sun for a short time, giving it a definite and objectionable flavor.

2. Farmer Don forgot to empty the lines before filling the bulk tank. The milk sample he tastes lacks any distinct taste and has a definite flavor as if the milk has been watered down, with no odor.

3. Milk sample contains slight odor and flavor that is similar to silage; Farmer Rada admits the feed he fed this morning was stronger smelling than normal and that he did it before milking them in the morning

4. Milk sample was taken from the bulk tank on the Weytu Klene Farm and the odor reminds you of the citrus smell after your mom cleaned your house. Sample has a pronounced flavor that tastes like the chemicals normally used to clean the parlor.

5. Farmer Tom prides himself on his pasture-raised dairy cattle herd. Last week, the cattle found an onion patch and the milk this week took on a slight onion flavor.

6. The power went off at the Sunrise Farm for 2 hours and the refrigeration equipment quit working, resulting in the milk in the bulk tank getting warmer than it should have been. The milk sample smells sour and has a definite sour/tart flavor that gives your tongue a tingling sensation.

7. You grabbed a milk sample from the bulk tank on Flava-flav's Farm and didn't detect any odor problems but when you drank it, you noticed a slight flavor defect. When you look at the records, you realize that most of the cows are pretty close to the end of their lactations and a couple might even have mastitis, which explains why the milk tastes slightly salty.

8. Working at the Milk-Is-Us factory, you detect a pronounced odor in the air coming from milk that is heading to cheese production but decide to dump it because of it's extremely pungent odor. You decide to taste a little and the sample tastes like you think baby vomit would taste and lingers in your mouth for a while after you spew it out.

9. Over the past couple of days, you've received a couple of complaints about the flavor of the last batch of milk that was sent out so you decide to head out and check it out for yourself. The sample doesn't have any off odor but has a slight flavor defect when you taste it that reminds you of coffee and lingers on your tongue. After tracking down the batch of milk it came from, you realize that it was held at low temperatures for several days, which likely caused bacterial growth and the off-flavor.

10. You grab a glass of cold, delicious creamy milk from the bulk tank to enjoy as part of your morning break. As you gulp it down, you reflect on how good a normal glass of milk tastes and how fortunate you are to be part of a marvelous industry that feeds the country and world.

CMT

Mark your answers on the upper right portion of the second page of your e-scansheet

You have 5 samples to score.

View the video to see the samples.

Here is a link to the CMT video: https://youtu.be/HZ8X1ihpZbM

In the first group use

Sample # 1

Sample # 2

Sample # 3

In the second group use:

Sample #4 on paddle #1

Sample #5 on paddle #2

Natural / Imitation

You should leave the natural/ Imitation section of the e-scorcard blank.

This section is not part of the Minnesota Dairy Quality and Products CDE.

The materials for the ID and Characteristics of cheese can all be found in a power point document in the materials. Make sure to mark the cheese for ID for the 10 samples and then fill out the six matrix questions for each cheese below the ID.

The matrix questions and the problem solving reference were sent yesterday with the materials to duplicate for the CDE. If you do not have them ask you advisor.