

Utah FFA Association
2010 State Meats Evaluation & Technology CDE
Written Exam

Contestant Name: _____

FFA Chapter: _____

Instructions: *Carefully read each item and possible answers. Select your choice to each item by circling the letter next to the correct answer.*

1. Can frozen meat be cooked without thawing?
 - A. No – Unless cooking time is decreased
 - B. No – We should always thaw before cooking
 - C. Yes – However, cooking time will be decreased
 - D. Yes – However, cooking time will be increased

2. Which of the following meats should NOT be frozen?
 - A. Meats from a butcher shop
 - B. Meats from the grocery store
 - C. Meats in cans
 - D. Meats in plastics

3. Which common food borne bacteria is normally found in animal intestines? It is destroyed by cooking to 160°F.
 - A. *Campylobacter botulinum*
 - B. *Clostridium perfringens*
 - C. *Escherichia coli*
 - D. *Staphylococcus aureus*

4. The following are the most widely used methods of aging EXCEPT
 - A. Broiling
 - B. Dry aging
 - C. Fast aging
 - D. Vacuum packaging

5. If the power goes off, how long is meat safe in the refrigerator if the door remains closed?
 - A. 2 days
 - B. 6 to 8 hours
 - C. Indefinitely
 - D. It is not safe as soon as the power goes off

6. Which is a natural hormone used in the beef industry?
 - A. Bovine cilantro
 - B. Testosterone
 - C. Trenbolone acetate
 - D. Zeronal

7. What effect does meat containing the papain have on the person who eats it?
 - A. Body odor
 - B. Nausea
 - C. Toxicity
 - D. No effect

8. How can one usually judge whether uncooked meat is spoiled?
 - A. A change in cutability
 - B. A change in quality
 - C. A change in skeletal girth
 - D. A change in yield

9. What is the difference between a half ham and a portion such as butt or shank portion?
 - A. A butt or shank portion has had no center slices removed.
 - B. A half ham has had no center slices removed.
 - C. A half ham is known as a Boston butt.
 - D. There is no difference between a half ham and a butt or shank portion.

10. Which of the following contains the most cholesterol?
 - A. Three ounces of cooked lean beef
 - B. Three ounces of cooked lean pork
 - C. Three ounces of cooked skinless chicken
 - D. Three ounces of shrimp

11. Which is generally true of cuts taken from the middle section of the carcass along the backbone?
 - A. They are more tender
 - B. They are of lower quality
 - C. They are tougher
 - D. They contain more shank bones

12. Why is meat cured?
 - A. Cutability
 - B. Infiltration
 - C. Preservation
 - D. Saturation

13. Most of the USDA graded beef in our supermarkets is ____ with some ____.
 - A. Choice with some Select
 - B. Commercial with some Utility
 - C. Prime with some Choice
 - D. Utility with some Canner

14. Which meat is NOT commonly cured?
- A. Bacon
 - B. Corned beef
 - C. Fresh side
 - D. Ham
15. Which of the following food group tends to be more digestible?
- A. Animal foods
 - B. Grain products
 - C. Legumes
 - D. Vegetables and fruits
16. Is USDA inspection a guide to quality?
- A. No – Except outside of the United States
 - B. No – The USDA inspection stamp is a guide to wholesomeness
 - C. Yes – The USDA inspection stamp indicates the quality grade
 - D. Yes – The USDA inspection stamp indicates the yield grade
17. Meat is one of our best food sources of iron in the form of ___ iron.
- A. Carne
 - B. Chemically produced
 - C. Heme
 - D. Vegan
18. Which of the following is a system that identifies critical points that must be controlled in production to prevent public health hazards from occurring?
- A. ASPA
 - B. HACCP
 - C. MSB
 - D. SICP
19. Which of the following is a B-vitamin found in meat?
- A. Calcium
 - B. Riboflavin
 - C. Sodium
 - D. Zinc
20. What is used to develop additional tenderness and a characteristic flavor in meat?
- A. Aging
 - B. Calcerating
 - C. Irradiating
 - D. Vacuum packaging

21. How has the nutrient density of meat changed in the past 20 years?

- A. It has decreased
- B. It has increased
- C. It has remained constant
- D. It has stayed the same

22. What is a common name for sodium chloride?

- A. Hot Pepper
- B. Sugar
- C. Table salt
- D. Vitamin C

23. Which legislation dictates strict animal handling, stunning, and slaughter guidelines?

- A. Animal Kill Act of 1983
- B. EPA Guidelines of 1942
- C. Humane Slaughter Act of 1978
- D. Kosher Kill Legislation from the 1930's

24. Which of the following is a sterol found in all animal tissue?

- A. Campesterol
- B. Cholesterol
- C. Ergosterol
- D. Phytosterol

25. What temperatures tend to toughen meat protein?

- A. High temperatures
- B. Low temperatures
- C. There are no proteins in meat
- D. There is no relationship between temperature and toughness

Utah FFA Association
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 Written Exam

KEY

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1. D 2. C 3. C 4. A 5. B 6. B	7. D 8. B 9. B 10. D 11. A 12. C 13. A	14. C 15. A 16. B 17. C 18. B 19. B 20. A	21. B 22. C 23. C 24. B 25. A

3 points each

(Total score out of 75)

Utah FFA Association
2010 State Meats Evaluation & Technology CDE
Meat Formulation Problem

Name: _____

Chapter: _____

USDA REGULATIONS FOR GROUND BEEF:

GROUND BEEF: The terms “Ground Beef” and “Chopped Beef” are synonymous. Products so labeled must be made with fresh and/or frozen beef with or without seasoning and without the addition of fat as such, and shall contain no more than 30% fat. It may contain added water, binders or extenders. It may contain beef cheek meat not to exceed 25%. Heart meat and tongue meat are not acceptable ingredients. The Technical Requirements Schedule (TRS) – GB 2003 requires potential contracts to designate, in their technical proposal, a laboratory to conduct microbiological testing of boneless beef.

Specifications on ground beef for this activity:

1. No variety meats may be used.
2. No product more than four days old may be used.
3. All fresh products must be stored at a temperature not to exceed 32° F.
4. Least cost determined should be performed on acceptable ingredients to select the lowest cost product that meets all ground beef guidelines.

You have received an order with the following specifications:

Desired fat content of finished product = 10%

Batch size = 1,500 lbs.

Manufacture date = Tuesday, April 20, 2010

Available Ingredients

Product	Slaughter Date	Temp. “°F”	Fat Content	\$ Price/lb.
70% Lean Trim	April 16	32°	30%	2.09
80% Lean Trim	April 17	31°	20%	2.20
Bull Meat	April 17	33°	23%	2.27
Pork Loins	April 16	32°	17%	1.76
Sirloins	April 15	31°	8%	3.14
Beef Hearts	April 18	32°	6%	.62
Scrap Bin	April 17	32°	9%	2.59

Instructions: Carefully read each item and possible answers. Mark the correct answer by circling the number or letter next to your choice.

Solution – Which of the following was the correct formulation for this problem?

1. 70% Lean Trim & Beef Hearts
 2. 70% Lean Trim & Scrap Bin
 3. 70% Lean Trim & Sirloins
 4. 80% Lean Trim & Scrap Bin
 5. 80% Lean Trim & Sirloins
 6. Bull Meat & 70% Lean Trim
 7. Bull Meat & 80% Lean Trim
 8. Bull Meat & Beef Hearts
 9. Bull Meat & Scrap Bin
 10. The correct answer is not listed
-
1. What was total cost of the correct final batch?
 - A. \$2,550.00
 - B. \$3,535.35
 - C. \$3,535.00
 - D. \$3,832.35
 - E. \$3,847.50
 2. What was price per pound of the correct final batch?
 - A. \$1.35
 - B. \$1.37
 - C. \$2.55
 - D. \$2.57
 - E. \$3.83
 3. How much fat was in the correct final batch?
 - A. 0 lbs.
 - B. 100 lbs.
 - C. 150 lbs.
 - D. 1,350 lbs.
 - E. 1,400 lbs.
-
4. How much of the correct final batch was from the Scrap Bin?
 - A. 0 lbs.
 - B. 9 lbs.
 - C. 91 lbs.
 - D. 135 lbs.
 - E. 1,365 lbs.
 5. What percent of the correct final batch was lean?
 - A. 0%
 - B. 9%
 - C. 10%
 - D. 90%
 - E. 91%
 6. How much of the correct final batch was 70% Lean Trim?
 - A. 0 lbs.
 - B. 75 lbs.
 - C. 135 lbs.
 - D. 1,425 lbs.
 - E. 1,365 lbs.
 7. Which ingredient was excluded from the correct final batch due to freshness?
 - A. 70% Lean Trim
 - B. Beef Hearts
 - C. Bull Meat
 - D. Sirloins
 - E. No ingredients were excluded due to freshness
 8. What is the worth of the 80% Lean Trim in the correct final batch?
 - A. \$0.00
 - B. \$135.00
 - C. \$156.00
 - D. \$297.00
 - E. \$3,535.35

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Meat Formulation Problem

KEY

<u>Item</u>	<u>Answer</u>	
Solution	4	(10 points)
1.	D	(5 points)
2.	C	
3.	C	
4.	E	
5.	D	
6.	A	
7.	D	
8.	D	
		(50 points)

**Utah FFA State Finals
2012 Meat Science and Technology CDE
Written Exam- Key**

Directions: Read all questions and choose the best possible answer. Multiple choice questions are worth 3 points each and true/false question are worth 2 points each. 80 points are possible for the written exam.

1. Fresh, uncooked ground meats stored in the refrigerator have a storage time of
 - a. 2-3 days
 - b. 3-4 days
 - c. 1-2 days page 103**
 - d. 3-5 days

2. The dehydration of the surface tissues of food is referred to as
 - a. Rancidity
 - b. Freezer burn page 107**
 - c. Oxidation
 - d. Spoilage

3. Fresh, uncooked veal and lamb cuts can be stored in the freezer for
 - a. 6-9 months page 108**
 - b. 6-12 months
 - c. 3-4 months
 - d. 12-16 months

4. Which of the following statements about safe handling instructions is not true
 - a. They are regulated by the FSIS
 - b. They are the same on all types of raw meat and poultry
 - c. They are required by the FSIS on all labels of raw meat and poultry page 113-114**
 - d. They can be found on all meat and poultry packaged by federally inspected plants

5. Which defrosting method will result in the greatest loss of juiciness
 - a. In the refrigerator
 - b. In cold water
 - c. In a microwave oven page 118**
 - d. None of the above methods

6. Which of the following steps should be followed to safely handle leftovers
 - a. Divide food into large, deep containers
 - b. Maintain free air circulation in containers page 122**
 - c. Place large containers of food in refrigerators
 - d. Divide food into small, deep containers

7. At what cooking temperature will overcooking likely take place
- a. 300 degrees Fahrenheit
 - b. 325 degrees Fahrenheit** **page 126**
 - c. 125 degrees Celsius
 - d. 160 degrees Celsius
8. The USDA recommends a safe internal temperature of whole muscle products to be at least
- a. 125 degrees Fahrenheit
 - b. 140 degrees Fahrenheit
 - c. 160 degrees Fahrenheit
 - d. 145 degrees Fahrenheit** **page 128**
9. The minimum internal cooking temperature of all pork roasts, steaks and chops is
- a. 180 degrees Fahrenheit
 - b. 160 degrees Fahrenheit
 - c. 145 degrees Fahrenheit** **page 129**
 - d. 120 degrees Fahrenheit
10. Which of the following are examples of dry cooking methods
- a. Broiling, roasting, smoking** **page 132**
 - b. Broiling, braising, deep fat frying
 - c. Smoking, grilling, stewing
 - d. Convection oven cooking, broiling, braising
11. _____ is the cooking method accomplished by placing meat in a heavy, preheated non-stick skillet and cooking uncovered, turning only once.
- a. Grilling
 - b. Pan broiling** **page 138**
 - c. Pan frying
 - d. Stir frying
12. While roasting large cuts of meat, a meat thermometer should be used to check internal temperature and the meat should be removed _____ degrees Fahrenheit below the desired cooking temperature.
- a. 5 to 10** **page 141**
 - b. 5 to 15
 - c. 10 to 15
 - d. 15 to 20
13. Which of the following statements about processed meats is incorrect
- a. They must have all ingredients listed on the label
 - b. Ingredients are listed in order of decreasing weight
 - c. Are inspected by the USDA** **page 153**
 - d. All ingredients must be approved by FSIS

14. Which of the following is not a commonly known food borne pathogenic bacteria
- a. *Campylobacter jejuni*
 - b. ***Campylobacter coli*** **page 116**
 - c. *Salmonella spp.*
 - d. *Escherichia coli*
15. Which of the following cooking methods heats only the top surface of the meat
- a. Pan frying
 - b. Grilling
 - c. Roasting
 - d. **Broiling** **page 132**
16. Deep fat frying is best completed when fat is between _____ degrees Fahrenheit.
- a. 325 to 400
 - b. **350 to 360** **page 136**
 - c. 325 to 375
 - d. 350 to 400
17. Which of the following cooking methods may result in different cooked texture in comparison to other cooking methods
- a. Pan broiling
 - b. Stir frying
 - c. **Microwave** **page 144**
 - d. Smoking
18. Processed meats can include the following
- a. **Sausages and cold cuts** **page 152**
 - b. Hams and ground beef patties
 - c. Bacon and fresh ground pork
 - d. Frankfurters and chops
19. After a power outage, meat in the refrigerator is safe for _____ hours, unless meat temperatures rise above 40 degrees Fahrenheit for more than two hours.
- a. 4 to 6
 - b. **6 to 8** **page 111**
 - c. 4 to 10
 - d. 6 to 10
20. Which of the following modifications are not required when cooking frozen meat
- a. Place meat further from heat source
 - b. Broil chops up to two times longer
 - c. Roasting time will increase by up to one and one half times
 - d. **Broil steaks up to three times longer** **page 120**

Utah FFA State Finals
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Specifications on ground beef for this activity:

1. All fresh products must be stored at a temperature not to exceed 34 degrees Fahrenheit.
2. No variety meats may be used.
3. No product more than three days old may be used.
4. Least cost determined should be performed on acceptable ingredients to select the lowest cost product that meets all ground beef guidelines.

You have received an order with the following specifications:

Desired fat content of finished product 15%

Batch size 5,000 lbs.

Manufacture date= April 24, 2012

Available Ingredients

<u>Material</u>	<u>Slaughter Date</u>	<u>Temperature</u>	<u>Fat Content</u>	<u>Price</u>
70% Lean Trim	April 22	33 Degrees	30%	\$2.20
Boneless Chuck	April 21	33 Degrees	14%	\$2.65
75% lean trim	April 22	32 Degrees	25%	\$2.25
90% lean trim	April 21	31 Degrees	10%	\$2.55
Trimming Bin A	April 19	37 Degrees	12%	\$1.70
Beef Kidneys	April 22	32 Degrees	15%	\$.95

Instructions: Carefully read each item and possible answer. Circle the correct formulation and the most correct multiple choice answer.

Solution- Which of the following was the correct formulation for this problem? Circle the correct answer.

1. 70% Lean and Beef Kidneys
2. Trimmings Bin A and 90% Lean
3. Boneless Chuck and 70% Lean
4. 70% Lean and 90% Lean
5. 75% Lean and Boneless Chuck
6. Trimmings Bin A and 75% Lean
7. Trimmings Bin A and 90% Lean
- 8. 75% Lean and 90% Lean**
9. Beef Kidneys and 75% Lean
10. 70% Lean and 75% Lean

1. What is the price per pound for the correct batch?

- a. \$2.21
- b. \$2.61
- c. \$2.45**
- d. \$2.46

2. What percent of the final batch was Boneless Chuck?

- a. **0%**
- b. 91%
- c. 67%
- d. 94%

3. How much fat was in the final batch?

- a. 1000 lbs.
- b. 4250 lbs.
- c. 750 lbs.**
- d. 600 lbs.

4. Which ingredient was excluded because of freshness?

- a. Beef Kidneys
- b. Trimmings Bin A**
- c. Boneless Chuck
- d. 75% Lean

5. How many pounds of the final product is 70% trim?

- a. **0 lbs.**
- b. 1250 lbs.
- c. 300 lbs.
- d. 1650 lbs.

6. What percent of the final batch was lean?

- a. 0%
- b. 15%
- c. 80%
- d. 85%**

7. How much money was required to purchase the 75% Lean for this batch

- a. \$1012.50
- b. \$2750.00
- c. \$3712.50**
- d. \$660.00

8. How much 90% Lean was in the final batch?

- a. 1650 lbs.
- b. 3350 lbs.**
- c. 3750 lbs.
- d. 4700 lbs.