

Ohio FFA Association  
2009 State Meats Evaluation & Technology CDE  
Written Exam

***Instructions: Carefully read each item and possible answers. Mark the correct answer on the appropriate form. Completely fill the chosen oval to indicate your answer.***

1. Generally, what is the result of freezing and defrosting meats?
  - A. A deterioration in quality
  - B. An improvement in quality
  - C. Ice crystals improve the meat texture
  - D. Juices are retained in the meat
  
2. What are PCBs?
  - A. Phenylchloro biphenyls
  - B. Phenylchloro butyls
  - C. Polychlorinated biphenyls
  - D. Polychlorinated bipolars
  
3. What is the paper-like covering on lamb? It is usually removed from chops but not from leg roasts.
  - A. The “feathering”
  - B. The “fell”
  - C. The “mohair”
  - D. The “tissue”
  
4. 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*
  
5. The following are safe methods of defrosting meat EXCEPT
  - A. In cold water
  - B. In the microwave oven
  - C. In the refrigerator
  - D. On the countertop at room temperature
  
6. 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

7. Which disease is caused by eating meat from wild game or hogs that have been infected with a parasite?
- A. BSE
  - B. Creutzfeldt-Jakob
  - C. *E-coli*
  - D. Trichinosis
8. The fat present in calves (baby beef) may have a yellow cast due to the \_\_\_ from the grass they have eaten.
- A. Carotene
  - B. Sodium
  - C. Vitamin C
  - D. Vitamin D
9. Which of the following is a B-vitamin found in meat?
- A. Calcium
  - B. Riboflavin
  - C. Sodium
  - D. Zinc
10. What is an oxygen interceptor used to retard rancidity of food due to oxidation?
- A. Aerobic
  - B. Anaerobic
  - C. Antioxidant
  - D. Oxy-Acetylene
11. What is “fresh ham”?
- A. A beef round that has not been cured.
  - B. A lamb leg that has been processed within the previous month.
  - C. A pork leg that has been slaughtered within the previous month.
  - D. A pork leg that has not been cured.
12. USDA Inspection is a guide to \_\_\_.
- A. Cutability
  - B. Quality
  - C. Quantity
  - D. Wholesomeness
13. What is defined by the USDA as the edible part of the animal that is muscle tissue attached to bone?
- A. Bone-in meat
  - B. Bone-out meat
  - C. Skeletal meat
  - D. Tendon meat

14. Steaks and chops for grilling should be a minimum of \_\_\_\_ thick.
- A. 1/8-inch
  - B. 1/4-inch
  - C. 1/2-inch
  - D. 3/4-inch
15. What is a minute amount of antibiotic, drug, hormone, insecticide, pesticide, or environmental contaminant remaining in meat and poultry after slaughter?
- A. Deposit
  - B. Filtrate
  - C. Remainder
  - D. Residue
16. What is BST?
- A. Best single treatment
  - B. Bovine somatoencephalopathy
  - C. Bovine somatotropin
  - D. Bovine spongiform treatment
17. Which of the following would be responsible for investigating a foodborne illness at a local restaurant?
- A. The Department of Education (DOE)
  - B. The Food and Drug Administration (FDA)
  - C. The local or state health department
  - D. The United States Department of Agriculture (USDA)
18. How much meat counts as one serving on the Food Guide Pyramid?
- A. 1 ounce
  - B. 2 to 3 ounces
  - C. 5 to 6 ounces
  - D. 10 ounces
19. Is beef required to have a government grade stamped on it?
- A. No – Beef is only graded outside of the United States
  - B. No – Except where local laws require it
  - C. Yes – All beef in the United States must be graded
  - D. Yes – Unless the EPA grants an exception
20. 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

21. What is a Boston butt?

- A. Either half of a pork leg/ham.
- B. Part of the pork shoulder.
- C. The rump half of a pork leg/ham.
- D. The shank half of a pork leg/ham.

22. What is the function of iron in the body?

- A. Iron is part of amino bases which build proteins
- B. Iron is part of our skeletal system which provides support
- C. Iron is part of the hemoglobin of blood which carries oxygen
- D. Iron is part of zinc in flesh which covers the body

23. 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

24. What is meat from a calf younger than one year of age?

- A. E maturity
- B. Lamb
- C. Ratite
- D. Veal

25. Why do chuck steaks curl when broiled?

- A. Contraction of the marbling
- B. Expansion of the connective tissue
- C. Exploding of the sarcomere tissue
- D. Shrinkage of the connective tissue

**Ohio FFA Association**  
**2009 State Meats Evaluation & Technology CDE**  
**Written Test**

**KEY**

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

**Ohio FFA Association**  
**2009 State Meats Evaluation & Technology CDE**  
**Meat Formulation Problem**

**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 three days old may be used.
3. All fresh products must be stored at a temperature not to exceed 34° 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 = 20%

Batch size = 1,500 lbs.

Manufacture date = May 1, 2009

(Note: There are 30 days in the month of April)

### Available Ingredients

Product	Slaughter Date	Temp. "°F"	Fat Content	\$ Price/lb.
70% Lean Trim	April 26	33°	30%	1.83
90% Lean Trim	April 29	34°	10%	2.01
Butcher Bulls	April 30	32°	23%	1.74
Lamb Legs	April 30	32°	15%	3.42
Beef Rounds	April 29	35°	13%	1.69
Beef Tongues	April 30	32°	4%	.67
Scrap Bin A	April 30	33°	27%	1.70

**Instructions:** Carefully read each item and possible answers. Mark the correct answer on the appropriate form. Completely fill the chosen oval to indicate your answer.

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

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. 70% Lean Trim &amp; 90% Lean Trim</li> <li>2. 70% Lean Trim &amp; Beef Tongues</li> <li>3. Beef Rounds &amp; Butcher Bulls</li> <li>4. Beef Tongues &amp; Beef Rounds</li> <li>5. Butcher Bulls &amp; 90% Lean Trim</li> <li>6. Butcher Bulls &amp; Beef Tongues</li> <li>7. Scrap Bin A &amp; 90% Lean Trim</li> <li>8. Scrap Bin A &amp; Beef Rounds</li> <li>9. Scrap Bin A &amp; Beef Tongues</li> <li>10. The correct answer is not listed</li> </ol>  | <ol style="list-style-type: none"> <li>4. How much 90% Lean Trim was in the correct final batch?           <ol style="list-style-type: none"> <li>A. 0 lbs.</li> <li>B. 230 lbs.</li> <li>C. 345 lbs.</li> <li>D. 770 lbs.</li> <li>E. 1,155 lbs.</li> </ol> </li> <li>5. Which product was excluded from the correct final batch because of temperature?           <ol style="list-style-type: none"> <li>A. 70% Lean Trim</li> <li>B. 90% Lean Trim</li> <li>C. Beef Rounds</li> <li>D. Butcher Bulls</li> <li>E. Lamb Legs</li> </ol> </li> <li>6. How much lean was in the correct final batch?           <ol style="list-style-type: none"> <li>A. 0 lbs.</li> <li>B. 300 lbs.</li> <li>C. 345 lbs.</li> <li>D. 1,200 lbs.</li> <li>E. 1,155 lbs.</li> </ol> </li> <li>7. What percentage of the correct final batch is Scrap Bin A?           <ol style="list-style-type: none"> <li>A. 0 lbs.</li> <li>B. 345 lbs.</li> <li>C. 615 lbs.</li> <li>D. 885 lbs.</li> <li>E. 1,155 lbs.</li> </ol> </li> <li>8. How much money would it take to purchase the correct amount of Butcher Bulls for the correct final batch?           <ol style="list-style-type: none"> <li>A. \$0.00</li> <li>B. \$345.00</li> <li>C. \$693.45</li> <li>D. \$1,155.00</li> <li>E. \$2,009.70</li> </ol> </li> </ol> |
| <ol style="list-style-type: none"> <li>1. What was the total cost of the correct final batch?           <ol style="list-style-type: none"> <li>A. \$2,086.50</li> <li>B. \$2,353.20</li> <li>C. \$2,703.15</li> <li>D. \$2,740.65</li> <li>E. \$2,831.20</li> </ol> </li> <li>2. What was the price per pound of the correct final batch?           <ol style="list-style-type: none"> <li>A. \$1.39</li> <li>B. \$1.57</li> <li>C. \$1.72</li> <li>D. \$1.80</li> <li>E. \$1.83</li> </ol> </li> <li>3. What percent of the final batch was fat?           <ol style="list-style-type: none"> <li>A. 0%</li> <li>B. 20.0%</li> <li>C. 23.0%</li> <li>D. 77.0%</li> <li>E. 80.0%</li> </ol> </li> </ol> |  |

Ohio FFA Association  
2009 State Meats Evaluation & Technology CDE  
Meat Formulation Problem

***KEY***

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

**2007**  
**Ohio State FFA**  
**Meat Evaluation and Technology**  
**Career Development Event**

**Written Test**

Directions: Choose the best response to each of the following statements or questions. In all cases, there will be only one best answer. Blacken the letter on your answer sheet beside the corresponding number that represents your choice.

1. The name of the book you should have studied for this exam was...
  - A. Yellow Pages
  - B. White Pages
  - C. Everything You Ever Wanted To Know About Meat But Were Afraid To Ask
  - D. Meat For Dummies
  
2. Which of the following is true?
  - A. The United States harvest more than 6.5 billion chickens per year.
  - B. The United States harvest more than 6.5 billion pigs per year.
  - C. The United States harvest more than 6.5 billion cattle per year.
  - D. All of the above are true.
  
3. Which of the following is true?
  - A. Short-fed refers to cattle that have trouble reaching the feed bunk.
  - B. Long-fed refers to cattle that have been on a high-concentrate diet (grain based diet) for an extended period of time during their finishing phase.
  - C. Free-range means no fences have been used.
  - D. Free-range means you don't need to pay rent for your neighbor's pasture (yard).
  
4. Some beef carcasses produce fat with a yellow color. The fat appears yellow because...
  - A. The fat contains more beta-carotene (vitamin A).
  - B. The animal was consuming a lot of forage or grass in its diet which would be high in beta-carotene (Vitamin A)
  - C. The animal was finished on grass and was never fed a high-concentrate diet (grain based diet).
  - D. All of the above.
  
5. Which of the following is true about veal?
  - A. The animal should be a minimum of 18 months of age at harvest.
  - B. The meat cuts from the loin should have a bright cherry-red color.
  - C. Veal can only be produced from a breed of sheep from Italy.
  - D. Paleness is considered a desirable characteristic.

6. What is DES?
  - A. A synthetic hormone-like substance that was banned from use in feeds in 1979.
  - B. Digestive Eating Syndrome
  - C. Delmonico Eating Society
  - D. The abbreviation used by meat cutters when they are text messaging their customers to imply “delivers eating satisfaction”.
  
7. Who is responsible for protecting Americans from eating illegal residues?
  - A. FDA
  - B. Producers
  - C. FSIS
  - D. All of the above
  
8. Which of the following has **NOT** been passed by the government as a form of legislation governing the meat industry?
  - A. Permission to Irradiate Meat
  - B. The Wholesome Meat Act
  - C. The Humane Slaughter Act
  - D. Prevention of Horse Slaughter Act
  
9. Which of the following is a criteria for a carcass to receive an inspection stamp?
  - A. Rib Eye Area
  - B. Wholesome
  - C. Back Fat
  - D. All of the above
  
10. Which of the following is **NOT** a recommended or approved method of aging?
  - A. Vacuum packaging the product in a moisture vapor-proof film (wet aging).
  - B. Storing the meat from 34 to 38 F for 10 days to six weeks in a controlled humidity (dry aging).
  - C. Allowing it to set out in the sun or next to I 70 until it is mushy (natural or organic aging).
  - D. Storing the meat at about 70 F for two days or less with controlled humidity and ultraviolet light to reduce bacterial growth (fast aging).
  
11. Which of the following has the lowest per capita consumption in the United States?
  - A. Beef
  - B. Pork
  - C. Lamb
  - D. Turkey

12. Which of the following are the primal cuts of a beef carcass?
- A. Loin, Rib, Chuck, Round
  - B. Leg, Chuck, Shoulder, Loin
  - C. Rack, Loin, Shoulder, Chuck
  - D. Chuck, Loin, Rack, Leg
13. Which of the following statements is true?
- A. Sodium phosphate is used as a curing agent and fixes meat color.
  - B. It is legal to sell a product after the sell-by date.
  - C. Mono sodium glutamate (MSG) is added to products to act as an anti-oxidant and extend their shelf-life.
  - D. A starter culture is the beginning of a new niche market based on new religious or ethnic practices.
14. Which of the following statements is **NOT** true?
- A. The legal limit for fat in a hotdog is 30%.
  - B. The legal limit for fat in a beef patty is 30%.
  - C. The legal limit for fat in a ground beef is 30%.
  - D. The legal limit for fat in ground poultry is 15%.
15. Which of the following statements is **NOT** true?
- A. You should not eat foods that contain cholesterol.
  - B. Cholesterol is used by the body to synthesize vitamin D.
  - C. Cholesterol is used by the body to synthesize hormones.
  - D. Cholesterol is a component of cell membranes.
16. Which of the following is **NOT** a vitamin?
- A. D
  - B. E
  - C. F
  - D. K
17. Which of the following are grades for poultry carcasses?
- A. USDA #1, USDA #2, USDA #3, USDA #4.
  - B. A, B, and C
  - C. Prime, Choice, Select, Standard
  - D. Prime, Choice, Good, Utility

18. Mutagenic compounds called “heterocyclic aromatic amines” (HAAs) can form when proteins are heated at high temperatures. The content of “IQ”, one of the HAAs present in highly-heated meat is less than 0.5 parts per billion. The National Cancer Institute studied HAAs carcinogenic effects. Which of the following summarizes their study as it relates to HAAs and over cooked meats.
- A. A human would have to consume 91,000 pounds of overcooked meat every day for three years to ingest the amount of IQ fed to monkeys which produced liver cancer.
  - B. This stuff is a very serious risk.
  - C. Meat is the only source of carcinogens.
  - D. Spinach is always safer than meat.
19. Meat is an excellent source of protein. Which of the following is considered the building blocks of protein?
- A. Legos
  - B. Amino Acids
  - C. Elements
  - D. Barley and Hops
20. Which of the following statements is **NOT** correct?
- A. Trichinae is killed by cooking pork to 140 F.
  - B. Bacterial cells are generally destroyed by heating them to 160 F.
  - C. It is generally recommended that you cook poultry to a higher temperature than beef, pork, or lamb.
  - D. You can't get food poisoning if you are a vegetarian.

**KEY:**

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

**2007 Ohio State FFA  
Meat Evaluation and Technology Career Development Event**

**Meat Formulation  
Problem Solving**

**Ogden's Bar-B-Q Pit & Spit Buffet**

This is International month at the Pit & Spit Buffet so they will be featuring a Greek Style Gyro and a Pennsylvania Dutch Style Bratwurst. They have asked you to determine the least cost formulation for the two types of products they plan to produce later today (May 4, 2007). The gyro will be a 70% lean product made of fresh lamb and fresh USDA Select beef (to ensure the lamb and beef is not imported). The bratwurst will be a 75% lean product made of pork and USDA Select beef.

**Available Ingredients/Raw Materials for the Gyro**

<b>Material</b>	<b>Package Date</b>	<b>Storage Temp.</b>	<b>Fat Content</b>	<b>Price \$/lb.</b>
<b>Beef</b>				
Fresh 90% lean Select beef trim	4-27-2007	33°F	10%	\$1.40
Fresh 85% lean Select beef trim	4-26-2007	30°F	15%	\$1.35
Fresh 73% lean Choice beef trim	4-26-2007	39°F	27%	\$1.14
<b>Lamb</b>				
Frozen 67% lean lamb trim	4-27-2007	18°F	33%	\$1.02
Fresh 65% lean lamb trim	4-30-2007	36°F	35%	\$1.55
Fresh 60% lean lamb trim	4-28-2007	33°F	40%	\$1.40

Rules and requirements for the Greek Style Gyro

1. All government regulations will be followed.
2. All fresh products must be stored at temperatures that do not exceed 38°F.
3. Only fresh products may be used (no product over 10 days old may be used).
4. Only USDA Select beef trim may be used

Lamb Gyro

Following the rules and requirements and using the raw materials presented above, you need to develop a batch of gyro that meets the following specifications:

- ◆ Desired Fat content = 30%
- ◆ Batch size = 2000 pounds
- ◆ To be manufactured May 4, 2007

1. What is the least expensive raw material that meets all the rules and requirements for the Greek Style Gyro?  
A. 60% lean lamb trim      C. 73% lean beef trim  
B. 67% lean lamb trim      D. 85% lean beef trim
2. How many pounds of the 90% lean beef trim are going to be in the 2000 pound batch?  
A. 400 pounds      C. 1200 pounds  
B. 667 pounds      D. None
3. What is the price per pound of the finished least cost product?  
A. \$1.08      C. \$1.40  
B. \$1.38      D. \$1.50

### Available Ingredients/Raw Materials for the Bratwurst

Material	Package Date	Storage Temp.	Fat Content	Price \$/lb.
<b>Beef</b>				
Fresh 90% lean Select beef trim	4-27-2007	33°F	10%	\$1.40
Fresh 87% lean Select beef trim	4-26-2007	39°F	13%	\$1.37
Fresh 75% lean Choice beef trim	4-26-2007	36°F	25%	\$1.11
Fresh 60% lean Select beef trim	4-28-2007	37°F	40%	\$0.90
<b>Pork</b>				
Fresh 85% lean picnics	4-30-2007	36°F	15%	\$0.85
Fresh 75% lean pork trim	4-20-2007	33°F	25%	\$0.76
Frozen 67% lean pork trim	4-27-2007	18°F	33%	\$0.47
Fresh 65% lean pork trim	4-29-2007	34°F	35%	\$0.50

#### Rules and requirements for Pennsylvania Dutch style Bratwurst

1. All government regulations will be followed.
2. All fresh products must be stored at temperatures that do not exceed 38°F.
3. Only fresh products may be used (no product over 10 days old may be used).
4. Only USDA Select beef trim may be used

#### Pork Bratwurst

Following the rules and requirements and using the raw materials presented above, you need to develop a batch of pork bratwurst that meets the following specifications:

- ◆ Desired Fat content = 25%
- ◆ Must contain 60% pork and 40% beef
- ◆ Batch size = 2000 pounds
- ◆ To be manufactured May 4, 2006

4. How many products from the list above are not eligible to be used in the bratwurst formulation?
 

A. one	C. three
B. two	D. four
  
5. What is the least expensive raw material that meets all the rules and requirements for the Pennsylvania Dutch style Bratwurst?
 

A. 65% lean pork trim	C. 75% lean pork trim
B. 67% lean pork trim	D. 75% lean beef trim
  
6. How many pounds of lean pork trim are going to be in the 2000 pound batch?
 

A. 400 pounds	C. 1200 pounds
B. 800 pounds	D. 1600 pounds
  
7. How many pounds of 60% lean beef trim will be in the 2000 pound batch?
 

A. 400 pounds	C. 1200 pounds
B. 800 pounds	D. none
  
8. What is the price per pound of the finished least cost product?
 

A. \$0.83	C. \$0.87
B. \$0.86	D. \$0.90

## Key for Formulation Problems

1. D
2. D
3. B
4. D
5. A
6. C
7. D
8. B

**2005**  
**Ohio State FFA**  
**Meat Evaluation and Technology**  
**Career Development Event**

**Written Test**

Directions: Choose the best response to each of the following statements or questions. In all cases, there will be only one best answer. Blacken the letter on your answer sheet beside the corresponding number that represents your choice. Be sure to use the correct position of your answer sheet to answer the questions.

1. Which of the following is true about freezer burn?
  - A. Freezer burn is dangerous because bacteria will grow faster on a meat surface that has freezer burn.
  - B. Freezer burn is dangerous because the area that has freezer burn will not cook as fast allowing freezer bacteria to survive.
  - C. Both A and B are reasons why freezer burn is dangerous.
  - D. **Freezer burn is not dangerous.**
  
2. Which of the following is a variation of pan frying where thin sliced meat is combined with vegetables?
  - A. Pan broiling
  - B. Carnivore pan frying
  - C. Deep-fat frying
  - D. **Stir frying**
  
3. Which of the following is a low-fat method of cooking where fat is removed as it accumulates during cooking?
  - A. **Pan broiling**
  - B. Pan frying
  - C. Deep-fat frying
  - D. Stir frying
  
4. According to the American Academy of Pediatrics, which of the following is **not** true for children under the age of 5?
  - A. Hotdogs are one of the common foods associated with choking.
  - B. **Let your child drive while you are eating so you don't choke.**
  - C. Never leave your child unattended when he or she is eating.
  - D. Because you may not have time to react, don't allow children to eat in a car.
  
5. Which of the following is true for meat tenderizers?
  - A. Because a tenderizer improves tenderness, meat with a tenderizer added to it can be sold as a higher quality grade.
  - B. Meat with a tenderizer added to it will spoil faster because it breaks down quicker.
  - C. **The most commonly used meat tenderizer is actually from a plant.**
  - D. Tenderizers are commonly used because they add tenderness and don't need to be identified on the label.

6. Which of the following is **not** a meat cut?
- A. Boston Butt
  - B. Canadian Bacon
  - C. London Broil
  - D. Ann Arbor Bung Fillet**
7. Which of the following is **not** true?
- A. The pigment responsible for the red color in meat is myoglobin.
  - B. In the presence of oxygen, fresh beef has a bright cherry-red color.
  - C. In the absence of oxygen, fresh beef has a darker color (purplish color).
  - D. The plastic wrap used in most retail stores does not allow oxygen to pass through it. Thus, it traps oxygen in the package so beef appears bright cherry-red.**
8. Which of the following is correct for maximum fat content for the following meat products?
- A. Hotdog = 50%; Ground beef = 30%; Fresh sausage = 30%
  - B. Hotdog = 50%; Ground beef = 50%; Fresh sausage = 30%
  - C. Hotdog = 50%; Ground beef = 50%; Fresh sausage = 50%
  - D. Hotdog = 30%; Ground beef = 30%; Fresh sausage = 50%**
9. Which of the following statements is **not** true?
- A. A sausage product with greater than 10% water must be labeled as an imitation product
  - B. There is no limit on the amount of fat that is allowed in ground poultry.
  - C. Fabricated steak cannot contain more than 30% fat, added water, binders or extenders.
  - D. Hams that are injected with a water solution (brine or pickle) and then cooked back to their original raw weight must be labeled as “ham, water added”.**
10. Which of the following is one of the safe handling instructions?
- A. Keep out of reach of children.
  - B. Wear proper eye protection while cutting raw meat or poultry.
  - C. Rinse and properly discard after use.
  - D. Wash working surfaces, utensils, and hands after touching raw meat or poultry.**
11. Which of the following is one of the B-vitamins found in meat.
- A. Riboflavin**
  - B. Acetic acid
  - C. Ascorbic acid
  - D. All of the above are B-vitamins found in meat.
12. What does the word “scrapple” refer to?
- A. A scraper used to remove hair from pork carcasses
  - B. Ground cooked pork combined with cornmeal**
  - C. A board game where you spell words used in the meat industry
  - D. The extra meat and bone found on a saw blade after it has been used to cut fresh meat

13. Which of the following nutrients is incorrectly matched with the function it enhances?
- A. Iron – oxygen transport
  - B. Zinc – wound healing
  - C. Iron – keenness of taste and smell**
  - D. Zinc – protein synthesis
14. Which of the following products would not require refrigeration if they were sold through a mail order business?
- A. hard salami and dry-cured ham**
  - B. fully-cooked hams
  - C. smoked turkey
  - D. all meat products would require refrigeration to be shipped through the mail
15. What does the term “spring lamb” refer to?
- A. A wild sheep that jumps a lot
  - B. A sheep born during the spring
  - C. Lamb imported from Australia or New Zealand
  - D. Meat from a lamb under a year of age**
16. Which of the following is a USDA Meat Grade for poultry?
- A. US No. 1
  - B. Grade C**
  - C. Cull
  - D. Prime
17. Which of the following is **not** a reason that water is used while making processed products such as sausage?
- A. To help clean the meat while it goes through the grinder**
  - B. To dissolve other additives (salt, spices, etc.)
  - C. To decrease the production cost because water is cheaper than meat
  - D. All of the above are reasons why water is used while making sausage
18. Which of the following is **not** a desirable trait in regard to veal?
- A. Tenderness
  - B. Flavor
  - C. Pale color
  - D. A, B and C are all desirable traits**
19. What causes the fat on beef carcasses from grass fed beef to be yellow?
- A. Vitamin A**
  - B. Vitamin B
  - C. Vitamin C
  - D. Vitamin Y
20. What is the purpose of electrical stimulation in regard to beef?
- A. To aid in tenderizing**
  - B. To make it cook more rapidly

- C. To keep people from stealing it from the retail case
  - D. To bring the carcass back to life
21. The length of time before slaughter that use of a hormone or drug must be discontinued is called the \_\_\_\_\_.
- a. regulatory period
  - b. hormone processing period
  - c. out of commerce period
  - D. **withdrawal period**
22. What is the major purpose of aging meat?
- A. to lower the water activity and prevent microbial growth
  - B. to allow supply and demand in the market place balance out
  - C. so it can be sold in gift packs with wine
  - D. **to develop additional tenderness**
23. The two most common sources of foodborne illness are...
- A. *E. coli* O157:H7 and *Salmonella*.
  - B. *Listeria monocytogenes* and *Salmonella*.
  - C. ***Samonella* and *Campylobacter*.**
  - D. *Listeria monocytogenes* and *E. coli* O157:H7.
24. What does HACCP stand for?
- A. Health Association for Cooking and Curing Processors
  - B. **Hazard Analysis and Critical Control Points**
  - C. Ham and Center-Cut Pork
  - D. Horizontal and Center Chopped Products
25. What is the meaning of cutability when related to the grading of a carcass?
- A. The amount of force required to cut through the meat.
  - B. **The yield of lean meat.**
  - C. The age of animal at slaughter.
  - D. The time it takes to fabricate a carcass into retail cuts.

**2005 Ohio State FFA  
Meat Evaluation and Technology Career Development Event**

**Meat Formulation  
Problem Solving**

**Ogden's Fresh Food Aquarium**

Today you will be working for Ogden's Fresh Food Aquarium (Ogden's FFA). They have asked you to determine the least cost formulation for the two types of products they plan to produce later today. The first will be an 80% lean "Choice Ground Beef" product, and the second will be a 70% lean pepperoni product. Use the following information and guidelines for each product.

**Available Ingredients/Raw Materials**

<b>Material</b>	<b>Package Date</b>	<b>Storage Temp.</b>	<b>Fat Content</b>	<b>Price \$/lb.</b>
<b>Beef</b>				
Fresh 90% lean cow trim	4-27-2005	33°F	10%	\$1.12
Fresh 80% lean select beef trim	4-29-2005	33°F	20%	\$1.15
Fresh 85% lean choice beef trim	4-28-2005	30°F	15%	\$1.68
Fresh 75% lean choice beef trim	4-29-2005	34°F	25%	\$1.54
Fresh 60% lean choice beef trim	4-28-2005	38°F	40%	\$1.28
Fresh Beef heart	4-28-2005	35°F	11%	\$0.42
<b>Pork</b>				
Fresh 70% lean picnics	4-29-2005	36°F	30%	\$0.68
Fresh 60% lean pork trim	4-27-2005	33°F	40%	\$0.64
Fresh 45% lean pork trim	4-28-2005	34°F	55%	\$0.48
<b>Other species</b>				
Fresh 64% lean lamb trim	4-26-2005	32°F	36%	\$1.57
Fresh 70% lean goat trim	4-28-2005	34°F	30%	\$0.98
Fresh 85% lean goat trim	4-27-2005	34°F	15%	\$1.04
Fresh 95% lean venison*	12-22-2004	45°F	5%	\$0.35

\*poached from Ogden Acres and Natural Reserve

Rules and requirements for Ogden's Choice Ground Beef

1. All government regulations will be followed.
2. All fresh products must be stored at temperatures that do not exceed 39°F.
3. No fresh product over 10 days old may be used.
4. Variety meat items are not acceptable ingredients.

Rules and requirements for Ogden's Bearded Pepperoni

1. All government regulations will be followed.
2. All fresh products must be stored at temperatures that do not exceed 36°F.
3. No fresh product over 14 days old may be used.
4. The ingredients list on the label of the final pepperoni product will read as follows: **Goat, pork, salt, dextrose, paprika, pepper, anise, sodium nitrite, and sodium erythorbate**

