3rd Annual AMSA Quiz Bowl

Reciprocal Meat Conference

Round 1
Question #1

Muscle proteins are degraded during aging by what enzymes?

Calpains
Question #2

What term describes microbes that need oxygen to grow?

Aerobic (Aerobes)
3
Question #3

What stromal protein comprises the *Ligamentum nuchae*?

Elastin
Question #4

What is the muscle condition of this bull most commonly called?

Double-muscled
Question #5

Which genus of bacteria, often associated with poultry, has species of *derby, havana, and enteritidis*?

*Salmonella*
Question #6

What is a point or step in a process where control can be applied to prevent, eliminate, or reduce a hazard?

Critical Control Point
Question #7

What is the dressing percentage of a steer that had a live weight of 1,250 lb. and a carcass weight of 800 lb.?

64%
What protein comprises this part of the sarcomere?

Actin
Question #9

What shape are these bacteria?

Rod-shaped (Bacilli)
Question #10

What are fatty acids with two or more double bonds called?

Polyunsaturated
Question #11

What is the common name of this muscle?

Ribeye
Question #12

What type of HACCP hazard would jewelry be considered?

Physical
13
What bacterium was responsible for the deaths of several children consuming undercooked ground beef patties in 1993 at Jack in the Box restaurants in the Northwest?

*E. coli* O157:H7
Question #14

Which muscle type is multinucleated?

Skeletal
Question #15

If this symbol appears on a product, what treatment has the product received?

Irradiation
Question #16

What is the USDA Quality Grade of a beef carcass with lean maturity of A^{90}, skeletal maturity of B^{30}, and marbling score of S^{180}? 

USDA Standard
Question #17

Who was the first general manager of the National Live Stock & Meat Board?

R. C. Pollock
Peppercorns and bay leaf are commonly used spices that give which beef product its distinctive flavor?

Corned Beef
19
Question #19

What color of ink is used to apply the red meat carcass inspection stamp?

Purple
What USDA Yield Grade would a lamb carcass with 0.26 inch of fat be assigned?
Question #21

How many ribs are in a beef forequarter?

12
Question #22

Which genus of bacteria often associated with ready-to-eat foods, hot dogs or luncheon meats, can cause flu-like symptoms in healthy adults and abortions in pregnant women?

Listeria
23
Question #23

What is the USDA Yield Grade (to the nearest 0.1) of this steer:

HCW = 800  
Adj. PYG = 4.5  
KPH = 3.5%  
REA = 14.1

4.3
Question #24

What syndrome in swine leads to increased susceptibility to PSE lean?

Porcine Stress Syndrome
Question #25

Identify this equipment.

Captive Bolt Stunner
Question #26

What are edible meat by-products better known as?

Variety Meats
Question #27

What is the most common preservative in processed meats?

Salt
What bovine gland is commonly marketed as “Sweetbreads”? Thymus
Question #29

Identify this equipment.

Band Saw
Question #30

Identify this equipment.

Weasand Rod
Question #31

What is the largest fast food chain in the world?

McDonald’s
What is the U.S. Grade of a pork carcass with a thin muscle score and 0.5” last rib backfat with acceptable quality characteristics and belly thickness?

U.S. No. 2
What is the connective tissue membrane surrounding a muscle bundle?

Perimysium
What is a mathematical technique for determining the best use of available resources when these resources can be used in other products?

Least Cost Formulation
Question #35
Which breed of swine often is associated with the Napole gene that can influence pork quality?

Hampshire
Question #36

Where is AMSA’s headquarters?

Savoy, IL
Question #37

Identify this wholesale cut.

Chuck
Question #38

Typically, what color is the fat of cow carcasses that have not been grain fed?

Yellow
Question #39

What act of 1999 requires timely reporting of livestock market data?

Livestock Mandatory Reporting
Question #40

What muscle cell organelle is responsible for sequestering Calcium during muscle relaxation?

Distal ileum
Question #41

What condition results during thawing of muscle that was frozen prerigor?

Thaw Rigor
Question #42

What month is designated as National Meat Month?

February
What general name is given to bacteria that cause diseases?

Pathogens
What is the sausage product consumed in the greatest amount in the United States?

Wieners or Frankfurters (hot dogs)
45
What is the scientific name of the most tender muscle in a beef carcass?

*Psoas major*
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Reciprocal Meat Conference

Round 2
Question #1

What is the connective tissue membrane surrounding a muscle fiber?

Endomysium
2
Question #2

What is the common name of intramuscular fat?

Marbling
Question #3

What is the term given to inspection of animals prior to slaughter?

Antemortem Inspection
Question #4

What is the most abundant myofibrillar protein?

Myosin
Question #5

What is the most well-known USDA Certified Program and is identified with carcass specification G1?

Certified Angus Beef
What lean quality defect sometimes is produced when swine are stressed immediately before slaughter?

Pale, Soft & Exudative (PSE) Pork
A beef carcass with skeletal maturity of A\textsuperscript{40} would typically have what percent ossification in the first 3 thoracic buttons?
What is the term used to describe storing refrigerated meat to improve tenderness?

Aging
Question #9

Which muscle type is non-striated?

Smooth
Question #10

Identify this muscle.

*Spinalis dorsi*
What year was the first intercollegiate meat judging contest held?

1926
Question #12

Who is the executive director of AMSA?

Thomas Powell
Question #13

What is this phase of microbial growth?

Lag Phase
Question #14

What is the minimum recommended doneness (°F) for a whole chicken?

180
Question #15

What causes wrinkled casings of beef sticks?

Stuffed too loosely
What is the IMPS series for Fresh Lamb (standardized cuts)?
Question #17

What study was conducted in 1991, 1995, and 2000 to establish baselines for beef quality shortfalls and identify targets for desired quality levels?

National Beef Quality Audit
Question #18

Meat from which sex class of cattle typically has the most bind?

Bull
What sausage manufacturing process involves grinding and mixing meat ingredients with cure to permit protein solubilization and chemical analyses before final mixing in sausage manufacture?

Preblending
Question #20

Which steak was cut from the most posterior location?

A  B  C

B
The beef rib and chuck are correctly separated between which two ribs?

5th and 6th
Question #22

List one of the three safe methods to defrost food.

Refrigerator, Cold Water, or Microwave
23
Question #23

Who was the first winner of the R. C. Pollock Award and the first president of AMSA?

R. W. Bray
Steer and barrow carcasses, unlike heifer and gilt carcasses, have what adjacent to the posterior end of the aitch bone?

Pizzle Eye
25
Question #25

Who is the president of AMSA?

Craig Bacon
Question #26

Which USDA agency inspects red meat products at slaughter?

Food Safety and Inspection Service (FSIS)
What is the defect condition of this ribeye called?

Blood Splash
Question #28

Triglycerides are composed of what two components?

Glycerol and (Free) Fatty Acids
Give the common name of the Food Additives Amendment to the federal Food, Drug, and Cosmetic Act that states that no cancer-causing substance can be added in any amount to the food supply.

Delaney Clause
What is the most important characteristic used to determine the maturity of a veal carcass?

Lean Color
What is the maximum level of nitrites allowed in finished hams?

200 ppm
Question #32

At what temperature (°F) does meat freeze?
Question #33

Which red meat animal species has the lowest average dressing percent?

Sheep
Question #34

What acid causes the pH of normal muscle to drop after slaughter?

Lactic
In January of 1997, B-maturity beef carcasses with a slight degree of marbling were no longer eligible for what USDA Quality Grade?

Select
36
Question #36

Who pays for USDA Meat Grading services?

Company using services (packer)
What is the common name of the microbial product that is added to lower pH in a timely fashion during manufacture of fermented sausages?

Starter Culture
As animals age, cartilaginous ends of vertebrae _____________.

Ossify
39
Question #39

What is the only meat wholesale cut traded on the Chicago Mercantile Exchange?

Pork Bellies
Question #40

BHA, BHT, and propyl gallate are used in processed meats what?

Antioxidants
Question #41
What is depleted from muscle before slaughter to produce “dark cutting beef?”

Glycogen
Question #42

Identify this beef variety meat.

Oxtail
Question #43

What beef hide defect costs the industry millions of dollars, but is a law in some states?

Branding
Question #44

What talk show host was sued by cattle producers because of an episode aired in April 1996 about “Mad Cow Disease?”

Oprah Winfrey
Question #45

What is the USDA Quality Grade (to the nearest one-third) of a “C” maturity beef carcass with a Slightly Abundant marbling score?

USDA High Commercial
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Round 3
Question #1

Identify the given compound.

Cholesterol
Question #2

What pathogen reduction step utilizes a steam chamber for carcasses?

Steam Pasteurization
Question #3

What are popular canned sausages, similar to frankfurters, although more bland in flavor and smaller?

Vienna Sausages
Question #4

What kind of bacteria prefer to grow in cold temperatures?

Psychrophiles (Psychrophilic)
Question #5

What is this A-maturity beef carcass referred to as?

Dark Cutter
Question #6

Identify this wholesale cut.

Leg
Question #7

What is shape of the bacteria shown?

Spherical (Cocci or Round)
Question #8

What structures do bacteria such as *E. coli* use for movement?

Flagella
Question #9

What is the most valuable by-product of cattle?
By FSIS regulations, the fat content of all sausages, except fresh pork sausage, cannot exceed what percent?

30
Question #11

Which muscle type is under involuntary control and striated?

Cardiac
Question #12

What structural unit of a muscle fiber is measured by the distance between these 2 lines?

Sarcomere
Question #13

What national organization funded by membership dues and checkoff dollars represents cattle producers?

National Cattlemen’s Beef Association (NCBA)
What muscle hypertrophy condition in sheep, which develops approximately 3 weeks after birth, means “Beautiful Buttocks”? 

Callipyge
Question #15

According to the Beef Steak Color Guide, what end-point cooking temperature (ºF) is associated with medium rare degree of doneness?

150
Question #16

Identify this equipment.

Incubator
Question #17
What is the scientific name of this bone?

Scapula
Question #18

Identify this equipment.

Meat Grinder
Question #19

What is a brine of salt, water, and sugar cure?

Sweet Pickle
Question #20

Which line on the graph represents the normal pH decline of a beef carcass?

Line 2
Question #21

What organ converts lactic acid to glucose?

Liver
Question #22

Identify this muscle.

Infraspinatus
23
Question #23

What is a person called who buys and sells futures contracts but has no role in the production of those commodities?

Speculator
Which university offered the first college “meats” course in 1893?

University of Minnesota
Question #25

What is the most abundant component of skeletal muscle?

Water
26
Question #26

What is the common name of this bone?

Aitch bone
What seafood has the highest per capita consumption in the United States?

Tuna
Question #28

What is the name of the portion of this carcass that is shown?

Hindsaddle
Question #29

Which chop has the **lowest** cutability?

1 2 3
30
Question #30

Identify this item.

Gambrel
What are the 4 major fat depots in a steer?

Backfat, Seam Fat, Marbling, KPH
Question #32

What vertebra is found in a T-Bone steak?

Lumbar
Question #33

What year was the American Meat Science Association established?

1964
Question #34

What is the nonprotein portion of myoglobin?

Heme ring
What is the flavor enhancer manufactured from glutamic acid?

MSG
What is a technique used to inject pickle simultaneously and automatically through a series of hollow needles, the shafts of which have numerous evenly-spaced holes along their lengths?

Multiple injection
Which company first utilized HACCP to ensure food safety in response to requirements imposed by NASA for “space foods”?

Pillsbury
Question #38

Which organization is responsible for the collection, distribution, and program accountability of the pork checkoff?

National Pork Board
Quality assurance employees in beef packing plants routinely perform AQL tests. What compound term does the acronym AQL represent?

Acceptable Quality Levels
Question #40

What is the scientific name of this bone?

Tibia
Question #41

What is the ultimate source of energy for muscle contraction?

ATP (Adenosine Triphosphate)
Question #42
What is a batter-like meat product produced by forcing bones with attached edible meat under high pressure through a sieve or similar device to separate the bone from the edible meat tissue?

Mechanically Separated (Deboned) Meat
Question #43

What is this phase of microbial growth?

Log Phase
Question #44

What inorganic compound in red meat is needed for the manufacture of many enzymes and hormones in the human body?

Zinc
Question #45

What is the time between ribbing and grading of beef carcasses called that allows oxygenation of the ribeye pigments?

Bloom Time
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Round 4
Question #1

Which muscle protein must bind calcium for muscle contraction?

Troponin
Question #2

What is a finely-comminuted dispersion of lean and fat particles into a two-phase system that consists of dispersed and continuous phases?

Meat Emulsion
What is frozen pork more susceptible to than frozen beef or lamb because pork fat has a higher proportion of unsaturated fatty acids?

Oxidative Rancidity
Question #4

What color is the horse meat inspection stamp ink?

Green
Question #5

Identify this amino acid structure.

Tryptophan
What is extracted from certain species of red seaweed and used as a thickening, gelling, stabilizing, and protein-suspending agent?

Carrageenan
Question #7

What is the quantity of heat that is necessary to raise the temperature of 1 g of water from 15 to 16ºC?

Calorie
Question #8

Identify this muscle.

*Serratus ventralis*
What act of 1967 specifies that all states must have an inspection system “equal to” that of the federal meat inspection system?

Wholesome Meat Act
10
What region of the protein molecule is attracted by fat in a sausage batter?

Hydrophobic
Question #11

What tropical plant produces bromelin, a meat tenderization enzyme?

Pineapple
What does FSIS recommend as the minimum degree of doneness (°F) for ground beef?
Question #13

What food stuff is in shortest supply in world?

Protein
Question #14

What innovation in beef marketing did IBP perfect in 1967 that dramatically changed the beef industry?

Boxed Beef
Question #15
What substance is formed when collagen is heated in the presence of moisture?

Gelatin
What is caused by the iron-catalyzed oxidation of unsaturated fatty acids and becomes more noticeable when refrigerated, precooked, uncured meats are reheated?

Warmed-over Flavor
Question #17

Identify this amino acid.

Lysine
In Japan, what fish is an expensive delicacy and extremely toxic?

Puffer
Name the two researchers who developed the most widely used and accepted machine to measure meat tenderness?

(Ken) Warner & (Lyman) Bratzler
Approximately, how many broilers are slaughtered in the US per year?

8.5 Billion
Question #21
What process relies on abrasion of meat against meat or meat against stainless steel rotating paddles to accomplish diffusion and binding of curing ingredients with meat?

Massaging
Question #22

What inorganic compound, found in red meat, is needed for hemoglobin production?

Iron
The hump of *Bos indicus* cattle contains which enlarged muscle?

*Rhomboideus*
Question #24

Identify this equipment.

Air Knife
Question #25

In June 2002, a U.S. District Court judge in South Dakota ruled what unconstitutional and ordered collection stopped by July 15, 2002?

Beef Checkoff
Question #26

What joint is cut to remove the head of a pork carcass?

Atlas joint
Question #27

What multicellular microorganisms are characterized by their mycelial morphology, display a variety of colors, and are generally recognized by their fuzzy appearance?

Molds
Question #28
Identify this muscle.

Gluteus medius
Question #29

What act of 1921 provided uniform rates and practices and prevented unfair, unjustly discriminatory, or deceptive practices of marketing livestock?

Packers and Stockyards
Palatability of beef refers to what three main attributes?

Tenderness, Juiciness & Flavor
What technology is commonly used to decrease heat ring and cold shortening of beef?

Electrical Stimulation
In July 1996, USDA-FSIS made a final ruling that all meat processors must implement what?

HACCP
Question #33

What would be the internal temperature (°C) of a steak cooked to a medium degree of doneness?
Question #34

What is the normal pH of fresh beef after chilling?

5.6 (5.4 – 5.8)
Question #35

What is used to rephosphorylate ADP to ATP during the onset phase of rigor?

Creatine Phosphate
Question #36

What is the common name of Transmissable Spongiform Encephalopathy, a neurological disease found in sheep?

Scrapie
Question #37

Which artery is used when a ham is artery pumped?

Femoral
Question #38
What is the USDA Yield Grade (to the nearest tenth) of a beef carcass with the following characteristics:

HCW = 600    PYG = 3.0
REA = 11.0    KPH = 3.5%
3.0
39
Question #39

What pigment results when fresh meat (oxymyoglobin) is oxidized?

Metmyoglobin
40
What is the common name for the pelt removal process during sheep slaughter?

Fisting
Question #41

What is the USDA quality grade (to the nearest one-third of a grade) of a beef carcass with \( A^{80} \) lean maturity, \( D^{80} \) skeletal maturity, and Small\(^{50} \) marbling?

USDA High Utility
42
In what city was the first meat judging contest held?

Chicago, IL
Question #43

Identify this cut.

(Pork) Spareribs
Question #44

What red meat has been marketed as “The Other White Meat?”

Pork
45
Question #45

What does the acronym HACCP stand for?

Hazard Analysis Critical Control Points
3rd Annual AMSA Quiz Bowl

Reciprocal Meat Conference

Round 5
Question #1

Beef is high in what kind of vitamins?

B
Question #2

What is the term given to the $1 per head assessed during the sale of domestic and imported cattle to fund marketing and research programs?

Checkoff
Question #3

Who was the author of “The Jungle?”

Upton Sinclair
Question #4

When was the Meat Inspection Act passed?

1906
Question #5

What are “Chitterlings” made from?

Pork Intestine
Question #6

What enzyme inhibits calpains during the cooler aging process?  

Calpastatin
7
What type of oxygen impermeable packaging is typically used in red meat fabrication facilities?

Vacuum Packaging
Question #8

What is an infection that can be caused by eating undercooked pork from swine fed raw garbage?

Trichinosis
Question #9

What is an increase in size resulting from the multiplication or production of new cells?

Hyperplasia
Question #10

What are the 3 basic meat curing ingredients?

Salt, Sugar (sweetner), Nitrite
Question #11

What portion of the sarcomere is indicated?

A Band
Question #12

What tendon is used when beef carcasses are hung on the rail?

Calcaneon Tendon (Achilles)
Question #13

Identify this muscle.

Trapezius
Question #14

What substance is used in meat curing to counteract the harsh flavor of salt?

Sugar
Question #15
Which chop was cut most anterior?

A  B  C

C
Question #16

Stuffing frankfurters too tightly could cause what defect?

Ruptured Casings
Question #17

Identify these vertebrae.

Lumbar
Question #18

What is the average dressing percentage of a male broiler?

73% (71-75)
Question #19

What spice from the dried leaves of an herb in the mint family gives pork sausage its typical flavor?

Sage
Question #20

Tissues or ingredients that have a binding index lower than 50 are called what?

Fillers
Question #21

What does the acronym PETA stand for when referring to animal activist organizations?

People for the Ethical Treatment of Animals
Question #22

Which arteries and veins are severed when cattle and swine are properly stuck?

Carotid arteries and Jugular veins
Question #23

Which fatty acid is most prevalent in beef, pork, and lamb?

Oleic
Question #24

What synthetic hormone used in beef was banned in 1979 by FDA because it was classified as a carcinogen by EPA?

DES (Diethylstilbesterol)
Question #25

What was the dressing percentage of a barrow that weighed 260 lbs and had a hot carcass weight of 195 lbs?

75%
Question #26

*Sous vide* translated literally from French means “________ ______.”

Under Vacuum
Question #27
Identify this type of knife.

Boning knife
What words does the acronym GRAS represent when used by the FDA?

Generally Recognized As Safe
Question #29
What is the graphic shown commonly known as?

Food Guide Pyramid
Question #30

Identify the technology shown.

Steam Vacuuming
Question #31

Identify this muscle.

Supraspinatus
Question #32

Who is the most well known scientists for developing livestock handling facilities and studying animal behavior?

Temple Grandin
Which U.S. retailer is the leader in case-ready meat volume?

Wal-Mart
Question #34

What is the second most popular sausage in the U.S.?

Bologna
Most bacteria require a relative humidity in excess of what % to grow?

90
Question #36

What country is the largest producer and consumer of ducks?

China
Question #37

The per capita U. S. consumption of which kind of meat has decreased the most since 1985?

Beef
Question #38

What is the time necessary at a given temperature to sterilize a suspension of bacteria and their spores (if they form spores)?

Thermal Death Time
39
What two beef wholesale cuts yield “Middle Meats”?

Rib and Loin
40
What viral disease in cloven-hoofed animals causes fluid-filled blisters on their mouth, tongue, teats, muzzle, and skin between their hooves?

Hoof (Foot) and Mouth Disease
Question #41

In what organelle in the cell does the Electron Transport Chain function?

Mitochondria
Question #42

What does IMPS stand for?

Institutional Meat Purchase Specifications
Question #43

When was USDA founded?

1862
What is the term given to the contents of the GI tract at the time of slaughter and affects dressing percentage more than most other factors?

Fill
Question #45

What is the embryonic development of muscle tissues?

Myogenesis
3rd Annual AMSA Quiz Bowl

Reciprocal Meat Conference

Round 6
Question #1

Identify this muscle.

*Semimembranosus*
2
Question #2

Who is the Secretary of Agriculture?

Ann Veneman
Question #3
What is the term used when cattle producers sell feeder or slaughter cattle futures on the Chicago Mercantile Exchange to protect their position?
Hedge (Hedging)
What conference will be held jointly with RMC in 2005?
Question #5
Identify the scientific name of this muscle.

Biceps femoris
What microbiological test provides a general estimate of live, aerobic bacteria?

Aerobic Plate Count (APC) or Total
Question #7

What is defined as any substance or agent present in food in an amount that renders the food unacceptable or potentially harmful to consumers?

Contaminant or Adulterant
Question #8

Typical mutton carcasses always have ________ joints on their front shanks.

Spool
9
What meat processing procedure is used to obtain pork with high pH and high water holding capacity?

Hot-boning
Edible collagen casings used for many sausages are made from which layer of the beef hide?

Corium
Question #11

What is the incorporation of organic or inorganic compounds into the properly prepared hide or skin collagenous structure to produce a stable, flexible, sheet material called leather?

Tanning
Question #12

What USDA Quality Grade is designated for steer and heifer carcasses, but not cow carcasses?

USDA Prime
Question #13

What is the scientific name of these fat depots?

Intermuscular
Question #14

What words does the acronym VPP represent in meat processing?

Vegetable Protein Product
Question #15

What country is the leading importer of Canadian pork?

United States
Question #16

Identify this wholesale cut.

Boston Butt (Shoulder)
Question #17
Which line on the graph represents the pH decline of a pork carcass that was stressed immediately prior to slaughter?

Line 3
Question #18

What is the typical length of a sarcomere in resting mammalian muscle?

2.5 µm
What are the 5 USDA Quality Grades of ovine carcasses?

Prime, Choice, Good, Utility & Cull
Question #20

What causes gelatin pockets in bologna?

Too much connective tissue
Which country is the leader in broiler production, per capita consumption, and exports?

United States
Question #22

*E. coli* O157:H7 causes what disease resulting in kidney failure?

Hemolytic Uremic Syndrome (HUS)
23
Question #23

Under anaerobic conditions, glucose metabolism produces what two compounds?

ATP & Lactic Acid
Question #24

What describes the wavelength of light radiation?

Hue
25
Question #25

The cellular unit of skeletal muscle tissue is the highly specialized cell known as what?

Muscle Fiber
During ante-mortem inspection, animals that have an abnormal temperature or display other symptoms of disease that would render their meat unfit for food are marked what?

U.S. Condemned
Question #27

What 3 forms does water exist in muscle?

Bound, Immobilized, & Free
When referring to hog scalding, what are the months from September – November known as?

Hard-hair months (season)
Question #29

Which chop was cut most anterior?

A  B  C

C
Question #30

Name 2 of the 5 members of the first AMSA Board of Directors.

Kropf, Palmer, Kinsman, Bratzler, & Pierce
Question #31

_____  _____ is defined by the Food and Drug Administration as any substance used to provide a technical effect in foods.

Food Additive
Question #32

What is the scientific name of internal fat?

Perinephric
Question #33

The spinal cord, Dorsal Root Ganglia, and distal ileum are examples of _______?

Specified Risk Materials
In 1967, who won a Pulitzer Prize for his expose based on a survey the USDA conducted to assess the quality of state meat inspection programs?

Nick Kotz
Question #35

_______ ovens operate at high air velocities from nozzles directed at the surface of the product.

Impingement
Question #36

What is major meat ingredient in Braunschwieger?

Liver
Question #37

Identify the muscle.

*Psoas minor*
38
Who was the first Executive Director of AMSA?

H. Kenneth Johnson
Which Ivy League university was named after an American who made his fortune in spice trading?

Yale
Question #40

What is the common name of the infectious disease, actinomycosis?

Lumpy Jaw
When fats and alkali are cooked together, _____ is the result.

Soap
Paprika comes from the dried, ripe fruit of *Capsicum annum*, while pimento comes from the undried fruit of the same plant.
Question #43

What is fat that has been deposited in the remaining portion of the scrotum of a steer?

Cod Fat
44
Question #44

What is the portion of the diaphragm muscle that is attached to the back region of the last rib?

Hanging Tender
Who developed Meat Animal Evaluation Contests?

R. G. Kauffman
3rd Annual AMSA Quiz Bowl

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Round 7
Question #1
What is the scientific name of this muscle?

*m. trapezius*
Who is the Research Leader of the Meats Research Unit at the Roman L. Hruska Meat Animal Research Center in Clay Center, NE?

Dr. Mohammad Koohmaraie
Which country produces the most meat in the world?

United States
Question #4

Identify this bone.

Femur
Potassium sorbate can be applied to sausage casings before or after stuffing to retard what?

Mold Growth
Question #6

What are the 3 USDA Quality Grades of rabbits?

A, B, & C
What is a savory, usually acidic, sauce in which meat is soaked to enrich its flavor or to tenderize it?

Marinade
If capillary breakage occurs in fat, the condition is commonly referred to as what?

Fiery Fat
What is the pigment form that gives cured meat its typical pink color?

Nitrosohemochrome
10
Substances that inhibit microbial activity are called what?

Bacteriostat
Question #11

What is the only meat cut rich in Vitamin A?

Liver
From what language was the word “sausage” derived?

Latin
What pork company purchased Farmland?

Smithfield
Question #14

What is the brand name of the β-agonist that is approved for use in Beef in the United States?

Optaflexx®
Question #15

What was the live weight of a lamb with a carcass weight of 60 lb and a dressing percentage of 50.0?

120
Question #16

What is defined as ingestion of pathogenic organisms that grow and cause illness in the host?

Food Infection
Question #17

What is the largest national trade association representing the meat packing and processing industry?

American Meat Institute (AMI)
What is the term used for the weight animals lose while being hauled and held off feed before slaughter?

Shrink (Drift)
Question #19

What is defined as the ability of meat to retain its water during application of external forces such as cutting, heating, grinding, or pressing?

Water Holding Capacity
Question #20

Which red meat species has the most similar dressing percentages to broilers?

Swine
Question #21

A beef carcass had a cold carcass weight of 784 lbs and a hot carcass weight of 800, what is the percentage cooler shrink?
What is the shape of the federal inspection stamp for exotic meat?

Triangular
Question #23

Prior to December 23, 2003 which country imported the most US beef?

Japan
24
What is the minimum marbling requirement for an “A” maturity beef carcass to grade USDA Select?

Slight 00
Question #25

What protein exhibits little or no emulsifying properties due to its unique triple-helical structure, which is extremely stable and not readily solubilized?

Collagen
What are the 4 most abundant chemical elements in an animal’s body?

Oxygen, Carbon, Hydrogen, & Nitrogen
What do you call a young, tender chicken about 7 weeks old with a dressed weight of 2½ to 4½ pounds?

Broiler
Question #28

What is the scientific name of the beef tri-tip muscle?

*Tensor fasciae latae*
Question #29

What equals the vapor pressure of the solution divided by the vapor pressure of the pure solvent (water)?

Water Activity
30
Question #30

In the food service industry, the acronym HRI stands for what?

Hotel, Restaurant, Institution
Question #31

What are the two principal sources of juiciness in meat, as detected by consumers?

Water and Intramuscular Fat (Marbling)
32
Question #32

When counting bacterial colonies, the acronym TNTC stands for what?

Too Numerous To Count
Question #33

What are the 3 factors used to determine the USDA Quality Grade of a lamb carcass?

Maturity, Conformation, Flank Streakings
What is the most important (factor) step in improving palatability of meat products?

Cooking
Question #35

What company marketed bologna based on the song beginning with the lyrics: “My bologna has a first name, it’s …?”

Oscar Mayer
Question #36

What folk legend was a meat packer that provided meat to the US Army during the War of 1812?

Uncle Sam (Samuel Wilson)
Question #37

Other than adding moisture, what is the purpose of adding ice in sausage production?

Keep Batter Cool
Question #38

Identify the retail cut.

Beef Shank Cross Cut
Question #38

What sub-primal would be made by removing the section of the round indicated?

Knuckle
Question #40

What is the common name this muscle?

Shoulder Rose
Question #41

_____ is the fat rendered from clean and sound edible tissues from swine.

Lard
42
Question #42

What is the common name of the objectionable sex odor/flavor in pork fat?

Boar Taint
Substances that destroy microorganisms are called ___________ agents.

Bactericidal
In HACCP, _____ _____ is a criterion that must be met for each preventative measure associated with a critical control point.

Critical Limit
Westphalian hams from northwest Germany are smoked with juniper twigs and berries over beechwood fire to give them their unique flavor.
3rd Annual AMSA Quiz Bowl

Reciprocal Meat Conference

Round 8
Question #1

Which product has the least protein per 3 oz. serving?

A. Ground beef patty
B. Beef and pork frankfurter
C. Pork Cutlet
D. Chicken Breast
E. Veal Cutlet

B. Beef and pork frankfurter
Question #2

What type of polyunsaturated fatty acids found in fish oils is believed to decrease the tendency to develop cholesterol clogged arteries?

Omega-3
3
Question #3

The percent daily value of each nutrient on a food label is based on a diet of how many calories?

2,000
A steer weighed 1,200 lbs at slaughter and dressed 64%. The packer paid $125/cwt for the carcass. How much was paid for the steer?

$1000
What gas is used to chemically stun hogs?

Carbon Dioxide
Question #6

Which food component is known to have the greatest effect on sustained juiciness?

Fat
Question #7

In the diagram shown, which injection site location is most acceptable?
Question #8

What is a cornmeal-based suspension of head meat and/or pork sausage originating from the Pennsylvania Dutch?

Scrapple
Question #9

In culinary terms, what meat comes from deer, elk, moose, antelope, caribou, and pronghorn?

Venison
What is the second most predominant fatty acid in beef and pork?

Palmitic
Question #11

Under aerobic conditions, pyruvate from glycolysis goes to what cycle in the mitochondria?

TCA/KREB’s
Question #12

Between which two ribs should a pork carcass be ribbed to measure loineye area?

10th and 11th
Question #13

In what U.S. city was the first meat packing plant started in 1818?

Cincinnati
Question #14

What are large fat particles that coalesce at the ends of sausages during heating?

Fat Caps
Question #15

What national organization was founded in 1922 by producers and packers to promote meat?

National Live Stock & Meat Board
Which country produces the most pork?

China
Question #17

What are gram-negative, non-spore-forming rods that ferment lactose to acid and gas in 48 h at 37ºC?

Coliforms
18
Which act established Land Grant Universities in 1862?

Hatch Act
What are the U.S. Consumer Grades for poultry carcasses?

A, B, and C
What is the food poisoning resulting from ingestion of a toxin (produced from an anaerobic, spore-forming, gas-forming bacterium) that affects the central nervous system of its victims?

Botulism
Question #21

Which sarcoplasmic muscle protein is primarily responsible for meat color?

Myoglobin
Question #22

What type of cholesterol is known as “Bad” cholesterol?

LDL
23
An increase in cell size is termed what?

Hypertrophy
Question #24

What bacterium (genus & species), typically found on raw chicken, is the leading cause of bacterial diarrhea in the United States?

*Campylobacter jejuni*
25
Question #25

What packaging method involves adding a head space gas to prolong the shelf life of the product?

Modified Atmosphere Packaging
Question #26
What is an unsexed male chicken usually under 8 months of age?
Capon
Question #27

What is accomplished by passing steaks or boneless sub-primals through a bank of needles or through a steak mascerator?

Mechanical Tenderization
What is the top broiler producing company in the United States?

Tyson
Question #29

What sausage probably is produced in the greatest amount in the world? In some regions, the green pistachio nut is a traditional ingredient.

Mortadella
What is the common name of this steak region?

Tail
What invention shortly after the Civil War enabled slaughter operations to be located near points of production instead of near points of consumption?

Refrigerated Railroad Car
What amino acids are those that cannot be synthesized by the body in amounts sufficient to meet its requirements?

Essential
Question #33

What is the most common instrument used to measure ribeye area and fat thickness of live animals?

Ultrasound
Question #34

What is the length of time before meat products become unpalatable, unsafe for human consumption, or unattractive in the display case?

Shelf-life
Question #35

What term refers to the cartilage located on the ends of the spinous processes of the thoracic vertebrae?
Question #36

What is the juice exuded from fresh, cooked and cured meats after they are packaged and remains in the package at the time of opening?

Purge
Question #37

What disease affects channel catfish and other species due to elevated levels of nitrite in water?

“Brown Blood” Disease
Question #38

What country exports the most shrimp to the United States?

Thailand
What year did the Nutrition Labeling and Education Act become mandatory? 

1994
Question #40

How much nitrite is in an 8-3-3 curing brine?

3 ounces
Question #41

Chlorine is commonly used at what concentration to sanitize processing equipment?

200 ppm
The _________ of a HACCP plan should identify all food safety risks that are reasonably likely to occur unless an establishment imposes control.

Hazard Analysis
Question #43

The lamb shoulder is correctly separated from the lamb rack between what ribs?

4th and 5th
Question #44

Fresh smoked Kielbasa originated in what country?

Czechoslovakia
What is the term used to describe tying the intestine during evisceration?

Bunging
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Reciprocal Meat Conference

Round 9
Question #1

What USDA beef carcass grade includes only those carcasses that are inferior to the minimum requirements specified for the Cutter grade?

Canner
What describes the intensity of a fundamental color with respect to the amount of white light that is mixed with it?

Chroma
Question #3

What is the rehandling or repacking of meat during the pickling period to permit a more uniform distribution of pickle?

Overhaul
Question #4

What type of poisoning results when histidine in fish is converted to histamine?

Scrombroid poisoning
Question #5

What is the first rule of safe food preparation in the home?

Keep It Clean
Question #6

Identify this muscle.

*m. complexus*
Question #7

What percentage of KPH would result in no adjustment being made to the USDA Yield Grade of a beef carcass?

3.5
Question #8

What is the base USDA Quality and Yield Grade of most beef carcass pricing grids?

Choice YG 3
Question #9

What are descriptions of routine tasks in a food processing operation?

Standard Operating Procedures (SOPs)
What two myofibrillar proteins form cross-bridges during muscle contraction?

Actin and Myosin
Question #11

What company produces and markets Sterling Silver Beef and Pork® and Ranchers Reserve®?

Excel (Cargill)
What is the most commonly used proteolytic enzyme, an extract from the papaya plant?

Papain
Question #13

What is the process of placing meat products into casings?

Stuffing
Question #14

What is the leading spice used in the U.S. meat industry?

Mustard (domestic)
Question #15

What proteolytic enzymes are located in lysosomes?

Cathepsins
Question #16

Identify the common name of this connective tissue.

Backstrap
What are unbranded hides commonly called?
Question #18

The tongue is divided into 4 general regions of taste. What taste is detected on the tip of the tongue?

Sweetness
The single most important phase of a sterile canning operation is what?

Retorting
Question #20
What meat packaging innovation, involving meat cuts being shipped directly to the retailer for display, has improved merchandizing, quality, and food safety?

Case-Ready
Question #21

How many ounces are considered a serving of cooked meat?

3 oz.
Question #22

What causes “muddy” smoked color in processed meat products?

Smokehouse too cold
Question #23

This ham exhibits color differences between muscles. What is this condition called?

Two-toning
Question #24

What is the average dressing percentage of steers?

62% (60 – 65%)
Question #25

In the picture shown, which location should fat thickness be measured to determine preliminary yield grade?

A
Question #26

What type of water is attached to protein and not released by chewing?

Bound
Question #27

Identify the breed type these ribeye steaks were produced from. These steaks are a delicacy in Japan.

Waygu
Question #28

What is the inner layer of skin that has been left on a lamb carcass after the pelt has been removed?

Fell Membrane
What is the shape of a typical growth curve of red meat animals?

Sigmoid Curve
Question #30

Which tendon connects the *Gastrocnemius* to the fibular tarsal bone?

Achilles
Question #31

What commonly-used procedure to determine fat content involves placing a previously-dried meat sample in organic solvent and heating it for several hours?

Ether Extraction
32
What is glucose stored as in the liver and in skeletal muscle?

Glycogen
The first alteration observed in ultrastructural integrity of postmortem muscle fibers is degradation of what?

Z Disks
Question #34

What temperature (ºF) should water in sterilizers at meat processing facilities be kept?

180
Question #35

What is a high-quality fat lining the abdominal wall of pork carcasses?

Leaf Fat
36
Question #36

What company produces SPAM® and Cure81® Hams?

Hormel Foods
Question #37

What is the world’s oldest and most common form of food preservation?

Drying
What are the only kind of uncooked hams of commercial significance produced in the United States?

Country Hams
Question #39

What term is given to the organs of the thoracic cavity which include the heart, lungs, and trachea?

Pluck
40
Question #40

Where was the American Meat Science Association established?

University of Wisconsin
Question #41

What single kind of restructured meats represents the most volume and value and involves binding meat pieces into a single piece?

Sectioned and Formed
Question #42

What has been replaced by cattle hides as a covering for footballs?

Pigskin
Question #43

When what is too high, moisture condenses on meat; if too low, moisture is lost to the atmosphere?

Relative Humidity
Question #44

Where is most calcium stored in relaxed skeletal muscle?

Sarcoplasmic Reticulum
The cell membrane surrounding the muscle fiber is called what?

Sarcolemma
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Reciprocal Meat Conference

Round 10
Question #1

What is the scientific name of the muscle from which Canadian Bacon is manufactured?

*Longissimus*
Question #2

What approximate chronological age is a C-maturity beef carcass?

42 – 72 months
3
What vitamin, when fed to cattle, has increased retail case-life of fresh beef?

Vitamin E
What is the cooking loss percentage of a roast that had a raw weight of 20 lbs and a cooked weight of 15 lbs?
The most commonly used commercial method for freezing meat products is what?

Blast Freezing
Question #6

What is a general term applied to any ingredient added to improve or modify flavor in processed meat products?

Seasoning
Question #7

What is the one principal reason that so much chicken is consumed?

Cheaper than red meats or seafood
Question #8

Tests for which two bacteria must be conducted under the Final Rule on Pathogen Reduction and HACCP?

Generic *E. coli* and *Salmonella*
Question #9

What is the disease found in humans that is similar to BSE?

vCj D
Aerobic plate counts are reported as CFU/g or mL. What does the acronym CFU stand for?

Colony Forming Unit
Question #11

What is the IMPS series for Fresh Veal and Calf (standardized cuts)?

Series 300
Question #12

What does the number shown on the federal inspection stamp signify, in this case 38?

Establishment
Question #13

What are the 4 methods of heat transfer?

Conduction, Convection, Radiation, Microwave
Question #14

Identify this muscle.

Vastus Lateralis
Question #15

By FSIS regulations, what percentage fat is allowed in fresh pork sausage?

50%
Excessive amounts of nitrite in cures may cause a greening of cured meat pigment called what?

Nitrite Burn
Identify this bone.

Humerus
Since sodium is the element in salt that causes hypertension, substitution of what for part of the NaCl has been used for producing sodium-reduced meat products?

Potassium Chloride
Question #19

What is a cloth that has been soaked in chlorinated water then wrapped around a carcass to smooth the fat, remove the blood and reduce cooler shrink?

Shroud
Question #20

What is defined as those animal tissues that are suitable for food?

Meat
Question #21

What is the gender of this beef carcass?

Male
Question #22

Identify this retail cut.

Lamb Rib
Crown Roast
Question #23

What is the shape of the horse meat inspection stamp?

Hexagonal
Question #24

Identify the structure.

Myoglobin
The attachment of Oxygen to the free ligand of the heme iron in Myoglobin is referred to as _________.

Oxygenation
Question #26

Who probably developed jerky?

Native Americans
Question #27

What is the name of the cartoon thermometer used by FSIS to promote the use of food thermometers?

Thermy™
Question #28

The ______ of a color is an indication of the overall light reflectance of the color.

Value
Question #29

What is an illness caused by ingestion of toxins?

Intoxication (Food Poisoning)
30
Trenbolone Acetate and Estradiol are examples of _________.

Implants
Question #31

What bacterium (genus & species) is yellow in color and found on the skin and hair of animal and man?

*Staphylococcus aureus*
Before the BSE case what was the leading U.S. beef export item?

Short Plate
Question #33

Soy protein isolates have at least what percent protein?

90
Question #34

What is the USDA Quality Grade of a lamb carcass with Pr-conformation and Ch-quality?

USDA Choice
Question #35

What are yield grades used to estimate?

Cutability
Question #36

How many ribs are in an acceptable IMPS 204, Lamb Rib Rack?
37
Question #37

Who were the 3 largest packers in the 1860’s?

Armour, Swift, and Morris
Question #38

What is the proper location to measure fat thickness of a beef carcass?

\[ \frac{3}{4} \text{ distance opposite the ribeye} \]
A steer was sold on the rail. Its 700-lb carcass graded USDA Choice, YG 5. The base price for Choice YG 3 steers was $130/cwt with a $30/cwt discount for YG 5. How much money did the producer receive for the steer?

$700
Question #40
Which steak has the highest muscle to bone ratio?

A

B

C

A
Question #41

What is the name of this cut, which is from the distinctive shape of this bone?

7-Bone
The checkoff program for which red meat species was established by the USDA on April 11, 2002?

Lamb
Question #43

What is a small, intracellular protozoan parasite that reproduces only in a cat’s intestine?

Toxoplasma gondii
Lack of what stored component in muscle causes the DFD condition?

Glycogen
Question #45

What veal is from calves that are 1 to 7 days old and have received only milk as a feed source?

Bob
3rd Annual AMSA Quiz Bowl

Reciprocal Meat Conference

Final Round 1
Question #1

What is the common name for potassium nitrate?

Saltpeter
Question #2
What is the process of killing all bacteria, spores and viruses in a meat product?

Sterilization
3
Question #3

What is the process of removing hair on a hog carcass by burning it off?

Singeing
Question #4

Identify the indicated muscle.

Psoas major
Question #5

Name a muscle that contains a high concentration of cardiac fibers?

Heart
Question #6

What country will host ICoMST later this summer?

Finland
Carbon dioxide is commonly used in swine slaughter for what procedure? 

Stunning
Question #8

Who is the current treasurer of AMSA?

Ann Hollingsworth
Question #9

What are the two types of adipose tissue found in many animal species at birth?

White and Brown
Question #10

Name three of the four requirements for a beef carcass to qualify for Certified Angus Beef?

Modest+ marbling, YG < 4, 51%
Black, No Bos *indicus*
Foot and Mouth disease is found on all continents except what three?

Antarctica, Australia, and North America
Question #12

How many thin filaments surround 1 thick filament in a cross-sectional view of a muscle fiber?

6
Question #13

A high oxygen modified atmosphere package typically contains what percentage of oxygen?

80%
Question #14

What portion of the sarcomere is indicated?

H Zone
Question #15

What USDA agency handles certification programs, such as CAB, Sterling silver, etc.

AMS
Question #16

What is the most abundant cytoskeletal protein in muscle?

Titin
Question #17

Where was the first boxed beef plant built?

Denison, IA
The USDA-FSIS requires that the internal muscle temperature of poultry be decreased to what temperature (°C) or lower within 8 hours of slaughter?
Question #19

What city became immortalized as “hog butcher of the world” by poet Carl Sandburg?

Chicago
Question #20

What is the only known chemical substance that can be added to meat that prevents botulism?

Nitrite
Question #21

Which U.S. President signed the Wholesome Meat Act into law?

Lyndon B. Johnson
Question #22

FSIS allows poultry carcasses and parts to pick up water during chilling. How much weight gain does FSIS allow in red meat carcasses?

None
What portion of the small intestine has been identified as containing the prion thought to cause Bovine Spongiform Encephalopathy?

Distal ileum
24
What slaughter type is performed according to prescribed rabbinical procedures, under supervision of authorized representatives of the Jewish faith?

Kosher
Question #25

Who was the original author of The Meat We Eat?

P. T. Ziegler
Question #26

What structure functions as an insulator around nerve fibers to prevent loss of an action potential?

Myelin sheaths
Question #27

Emulsifying proteins are called what because of their ability to harden during the cooking cycle?

Heat-coagulable
Question #28

What bacteria (genus & species) is the leading cause of food poisoning in Japan and is almost exclusively contracted from seafood?

*Vibrio parahaemolyticus*
Question #29

White muscle fibers are characterized by using predominantly _________ metabolism?

glycolytic
Question #30

Oxidation occurs when $O_2$ attaches at what location in a fatty acid?

Double Bond
Question #31

Which country has the highest per capita consumption of beef?

Argentina
Question #32

The extraction technique used by the meat industry to remove fats from most by-products that have no better market potential is called what?

Rendering
Question #33

What is the state of muscle when permanent cross-bridges form and prevent sliding of filaments, so that the muscle becomes inextensible?

Rigor Mortis
Question #34

What is the scientific name for the “Flat-Iron”? 

*m. infraspinatus*
Question #35

What two types of vertebrae are found in a beef shortloin?

Lumbar & Thoracic
36
What are two quality concerns associated with bellies from extremely lean market hogs?

Firmness and Thickness
Lack of space for water molecules within protein structures is known as a _______ effect on water binding.

Stearic
What technique is used to determine if cattle are over 30 months old?

Dentition
Question #39

What defect condition is caused by the cold shortening of the outside edges of ribeye muscle which causes a darkened and sunken appearance?

Heat Ring
Question #40

What is characterized by extensive fat infiltration into muscle fibers, often caused by denervation of muscles?

Steatosis (Callus)
The thick filament of a sarcomere is composed primarily of what protein?

Myosin
Question #42

What spice is commonly used if black pepper specs are not desired, but pepper flavor is desired?

White Pepper
Question #43

Fish fats are more __________ than the fats of either red or fowl meats, resulting in more rapid oxidation?

Unsaturated
44
Question #44

When was poultry inspection started in the United States?

1957
Question #45
Which product has the most cholesterol per 3 oz. serving?
A. Cod
B. Tuna
C. Shrimp
D. Crab
E. Flounder
C. Shrimp