**Slaughterhouse By-products Technology**

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1.

**Assertion A**: Establishing a byproducts utilization plant adjacent to a slaughterhouse or as a part of the same building, connected through chutes or gravity pipes, is important in tropical and subtropical countries.

**Reason R**: In such locations, the passage between the slaughterhouse and the byproduct plant must be constructed with concrete, stones, or bricks, and the slope should be towards the byproduct plant. The establishment should preferably be away from inhabited areas.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. Both A and R are true, but R is not the correct explanation of A.
3. **A is true, but R is false.**
4. A is false, but R is true.

2.

**Assertion** A: The floor, walls, and ceiling of a byproduct plant should be made up of smooth and concrete material.

**Reason** R: Smooth and concrete surfaces facilitate easy and frequent washing.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

3.

**Assertion** A: The boiler in a byproduct plant should have a steam pressure of > 80 psi.

**Reason** R: Steam pressure in the boiler is essential for both processing and cleaning operations.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

4.

**Assertion** A: The establishment of at least one animal byproducts processing plant at each 50 km range is essential due to the high livestock density in the country.

**Reason R**: Animal byproducts processing plants provide economic value and employment opportunities, particularly in densely populated livestock areas.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

5.

**Assertion**: The processing of blood can yield both inedible products and products suitable for animal feeding.

**Reason**: Fresh blood must be processed at the earliest moment as otherwise it decomposes rapidly with an appreciable loss in the nitrogen content.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

6.

**Assertion**: Blood is used in the preparation of black puddings and sausage making.

**Reason**: Occasionally, slaughter does not lend itself to economical treatment of blood, as the quantities are small.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, but R is true.

7.

**Assertion**: The desirable feature in the construction of the abattoir is that the animals should be bled at a central point by which arrangement a greater degree of hygiene and facilities can be achieved.

**Reason**: During slaughter, blood is not fully recovered, where spilling, or faulty management always loses some of it.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

8.

**Assertion**: Gelatine is manufactured from fresh bones obtained from slaughtered and inspected animals under strict hygienic conditions.

**Reason**: Pure gelatine is an amorphous and transparent substance devoid of any color, taste, and smell.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

9.

**Assertion**: Glue is chemically no different from gelatine.

**Reason**: Glue is a low-grade gelatine with comparatively dark color and has only inedible uses.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

10.

**Assertion**: Bones may be collected from abattoirs where large quantities of bones are available for obtaining ossein.

**Reason**: Skull and jawbones are non-gelatine-yielding bones.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, but R is true.

11.

**Assertion**: Sterilized bone meal is a good source of phosphate supplement in livestock feed.

**Reason**: The yield of bone meal is one third of that of raw bones, and its quality is determined by the presence of phosphorus and calcium in the ratio of 1:2.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

12.

**Assertion**: Collection of desert bones and their conversion to bone meal is an economically viable proposition.

**Reason**: Bone pieces of less than 2 mm size constitute bone meal, which can provide employment and improve livestock, and it is also important from a sanitary point of view.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, but R is true.

13.

**Assertion**: The average composition of bone meal includes calcium (30.5%), phosphorus (15.5%), protein (7.0%), and fat (1.0%).

**Reason**: Bones are cooked under pressure to remove the remaining blood, fat, meat, and dirt before being milled into bone meal.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

14.

**Assertion**: Middles are animal casings derived from the large intestines of cattle and pigs.

**Reason**: Bungs are made from the caecum, containing approximately 5 to 6 feet of intestine starting from the anus, and are considered a type of middle casing.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

15.

**Assertion**: Chitterlings or Black Guts are casings prepared from a part of the large intestines of hogs.

**Reason**: Weasands are made from the mucosa of the esophagus of cattle.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, but R is true.

16.

**Assertion**: Pig Stomachs are casings prepared from the stomachs of pigs.

**Reason**: Bladders are casings prepared from the urinary bladders of pigs and cattle.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, but R is true.

17.

**Assertion**: Dull color in casings (grayish or greenish instead of white or milky) is due to defective cleaning.

**Reason**: Salt burns in casings may cause dull color, particularly when stored for a long time with inadequate salt or air pockets.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

18.

**Assertion**: Holes and lacerations in casings are caused by negligence or rough handling of guts during processing.

**Reason**: Nodules in casings are caused by Oesophagostomum, a roundworm, in the intestines of sheep, goats, and pigs.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, but R is true.

19.

**Assertion**: Cicatrices in casings are caused by scars of healed-up intestinal wounds.

**Reason**: Kink, a twisted loop in casings, is a result of defective grading during processing.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, but R is true.

20.

**Assertion**: The direct conversion of raw, uncooked material into meat meal by sun drying is inadvisable due to the risk of spreading disease.

**Reason**: Raw meat meal, obtained through sun drying, contains a substantial amount of fat, making it virtually impossible to mill and leading to potential rancidity.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

21.

**Assertion**: The small, home production of meat meal must comply with three general principles, including sterilizing the product, reducing moisture to a minimum, and recovering fat to prevent rancidity.

**Reason**: The final products of carefully prepared meat meal should have low fat and moisture content, a high protein percentage, good keeping qualities, and a pleasant odor.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

22.

**Assertion**: Boiling, draining, pressing, drying, and milling are the steps in the production of meat meal.

**Reason**: Recovering fat from the sterilized and dried meal is crucial to prevent rancidity.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

23.

**Assertion**: Beef fats are obtained from the intestine and other internal organs.

**Reason**: In pig carcasses, the best quality fats are obtained from the peritoneal lining (leaf fat), back fat, mesentery, and omentum.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, but R is true.

24.

**Assertion**: A pig of 200 lbs. of live weight will yield about 14 lbs. of lard.

**Reason**: In pig carcasses, fats are obtained from various regions, and the best quality is obtained from the peritoneal lining (leaf fat).

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

25.

**Assertion**: Raw fat should be removed as quickly as possible after slaughter to prevent rancidity caused by the resolution of fat into fatty acids and glycerol in the presence of moisture and lipase.

**Reason**: Rendering refers to the extraction of fat from animal tissues by the action of heat, causing the cells to burst and the melted fat to run.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

26.

**Assertion**: Normally, fat should not contain more than 1% of free fatty acids.

**Reason**: The higher content of free fatty acids in fat indicates that there has been some delay in rendering the raw fat after the slaughter of animals.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

27.

**Assertion**: Cracklings or Greaves, the residual meat fibres left behind after extracting all the fats, are used in poultry feeds.

**Reason**: The tissues, removed after straining, are pressed in a machine to extract the lard or fat.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, but R is true.

28.

**Assertion**: Sheep fat is rendered in the same way as beef fat or lard, and though it is not converted into oleo oil or oleo stearin, it may be used as dripping when blended with other fats.

**Reason**: Mutton fat is firmer and contains more stearin than ox or pig fat and is used as a preservative layer on the top of glass jars of meat paste.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, but R is true.

29.

**Assertion**: Fat extraction from fresh bones is done earlier than gelatin extraction.

**Reason**: Fresh bones are processed under a steam pressure of 1.75 kg/sq. cm for one hour, sufficient to render the fat which is allowed to trickle off.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, R is false.

30.

**Assertion**: Neats foot oil is a pale, golden-yellow oil prepared from cattle feet, and it does not solidify or get dry even at freezing temperatures.

**Reason**: The average yield of neats foot oil is approximately 0.75 to 1 pint of oil from one animal.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, R is false.

31.

**Assertion**: The production of neats foot oil is economic only in places adjacent to large abattoirs.

**Reason**: The oil fetches a very high price, but the yield per animal is only a few millimeters.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

32.

**Assertion**: Cooking or extraction of neats foot oil involves boiling shinbones in water at 85°C for about 8 hours.

**Reason**: The moisture is removed from neats foot oil by heating at 85°C for nearly 2 hours.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. Both A and R are true, but R is not the correct explanation of A.
3. **A is true, but R is false.**
4. A is false, but R is true.

33.

**Assertion**: The corium or dermis layer of the hide contains elastin, reticulum, and collagenous fibers, and it is this part that makes up the leather.

**Reason**: The epidermis is the outer layer of the hide, consisting of an outer-pigmented surface and tubular invaginations of hair follicles.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, but R is true.

34.

**Assertion**: Leather has the ability to breathe, providing coolness in hot weather and insulation in cold weather.

**Reason**: The subcutis is a loose membrane network that contains fatty deposits.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, but R is true.

35.

**Assertion**: Chrome tanning is a modern and popular technique that yields soft, supple, and strong leather permeable to air.

**Reason**: In chrome tanning, basic chromium salt is directly applied in a solution to the skin in gradually increasing strength.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

36.

**Assertion**: Fat liquoring is done in the post-tanning operations to adjust the firmness or softness of the leather by lubricating the fibers with oil.

**Reason**: Staking refers to the softening and making the leather more pliable, deciding the final temper of the product in combination with fat liquoring.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, but R is true.

37.

**Assertion**: Buffing is done to smooth the grain surface of leather for a better appearance, and buffed leather is called corrected grain or full grain.

**Reason**: Glazing is done on chromic leather after seasoning and drying, producing a continuous plastic coat of high luster on the grain surface.

In light of the above statements, choose the correct answer from the options given below:

1. Both A and R are true, and R is the correct explanation of A.
2. **Both A and R are true, but R is not the correct explanation of A.**
3. A is true, but R is false.
4. A is false, but R is true.

38.

**Assertion**: Using road transport modes such as bullock carts or tractor trolleys for the transportation of dead animals is flexible, economic, convenient, and fairly quick.

**Reason**: The floor of these vehicles should be bedded with straws and made free from any projections to avoid bruising of the hides or skins of the dead animals.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

39.

**Assertion**: The transportation of condemned material from the slaughterhouse should be done in closed vehicles to the byproduct plant, and the vehicles may be labeled as carrying inedible animal byproducts.

**Reason**: Condemned material from slaughterhouses is sometimes available for byproduct utilization.

In light of the above statements, choose the correct answer from the options given below:

1. **Both A and R are true, and R is the correct explanation of A.**
2. Both A and R are true, but R is not the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

40.

**Assertion**: Chrome-tanned leather tends to be softer and more pliable than vegetable-tanned leather, with higher thermal stability, water stability, and shorter production time. It is predominantly used for lighter-weight cattle hides, as well as for sheep, lambs, goats, and pigs.

**Reason**: Tanning transforms the hide into a stable material, resistant to putrefaction and bacterial attack. Chrome powder is applied, penetrating the hide structure and forming cross-links with collagen under acidic conditions. After adequate chrome penetration, the hides are basified using a slightly alkaline substance like magnesium oxide. The pH is gradually raised to ~4, with the temperature increased to 45oC. This process fixes the chrome to the collagen. Leather is considered fully tanned when it resists heat and does not denature (shrink) at 100oC. The wet-blue hides are then removed from the processing drums.

**A. Both A and R are true, and R is the correct explanation of A.**

B. Both A and R are true, but R is not the correct explanation of A.

C. A is true, but R is false.

D. A is false, but R is true.

41

Q. What is the primary component that separates out during the action of thrombin on fibrinogen?

A. Serum

B. Fibrin

C. Plasma

Choose the correct answer from the options given below:

1. A only
2. **B only**
3. C only
4. A and B only

42.

What is the ideal vessel diameter and depth for collecting blood using a trocar knife and canula?

A. Diameter of 45 cm and depth of 15 cm

B. Diameter of 15 cm and depth of 45 cm

C. Diameter of 30 cm and depth of 20 cm

Choose the correct answer from the options given below:

1. **A only**
2. B only
3. C only
4. A and C only

43.

Q. How is fibrinogen obtained for the preparation of fibrin foam?

A. Centrifugation of blood collected with anticoagulant

B. Treatment of plasma with citrate buffer of pH 6

C. Clarification of the solution by centrifugation

Choose the correct answer from the options given below:

1. A only
2. B and C only
3. **A and B only**
4. A, B, and C

44.

Q. How is fibrinogen obtained for the preparation of fibrin foam?

A. Centrifugation of blood collected with anticoagulant

B. Treatment of plasma with citrate buffer of pH 6

C. Clarification of the solution by centrifugation

Choose the correct answer from the options given below:

1. A only
2. B and C only
3. **A and B only**
4. A, B, and C

45.

Q. What is the purpose of vigorously beating the solution in the preparation of fibrin foam?

A. To obtain fibrin bioplasts

B. To obtain fibrinogen foam

C. To convert fibrinogen to fibrin

Choose the correct answer from the options given below:

1. A and B only
2. **B only**
3. C only
4. A, B, and C

46.

What is the use of fibrin foam in medical applications?

A. It inhibits the action of antibiotics

B. It is used in nerve and arterial surgery, as well as prostate operations

C. It is used to arrest bleeding in skin injuries

Choose the correct answer from the options given below:

1. B only
2. A and C only
3. **B and C only**
4. A only

47.

Q. What is the primary source of ossein used for the production of gelatine?

A. Fresh bones from slaughtered and inspected animals

B. Degraded bones collected from eating houses and refuse dumps

C. Skull and jawbones from abattoirs

48.

Choose the correct answer from the options given below:

1. **A only**
2. B and C only
3. A and B only
4. A, B, and C

49.

How does glue differ from gelatine?

A. Glue has edible uses, while gelatine has only inedible (technical) uses.

B. Glue is obtained from fresh bones, while gelatine is derived from degraded bones.

C. There is no chemical difference between gelatine and glue.

Choose the correct answer from the options given below:

1. A only
2. B and C only
3. **C only**
4. A and B only

50.

Q. How is ossein obtained for the production of gelatine?

A. Breaking bones in weak acids to dissolve mineral components

B. Boiling fresh bones with Hydrochloric acid

C. Collecting skull and jawbones from abattoirs

Choose the correct answer from the options given below:

1. **A and B only**
2. B only
3. A only
4. A and C only

51.

Q. What is the primary source material for the production of gelatine?

A. Fresh bones

B. Collagen or ossein

C. Limed glue stock

Choose the correct answer from the options given below:

1. A only
2. **B only**
3. A and C only
4. B and C only

52.

What is the purpose of demineralization in the gelatine production process?

A. To remove non-collagenous material and fat

B. To decrease the concentration of gelatine

C. To decrease the quality of glue

Choose the correct answer from the options given below:

1. **A only**
2. B only
3. A and C only
4. A, B, and C

53.

How is gelatine obtained from the demineralized ossein in the extraction or cooking step?

A. By boiling at the highest temperature

B. By controlled hydrolysis at successively higher temperatures

C. By pressing and drying the residue

Choose the correct answer from the options given below:

1. A only
2. **B only**
3. C only
4. A and B only

54.

Q. What is the main source for natural casings in the digestive tube?

A. Mucosa

B. Submucosa

C. Circular muscle layer

D. Serosa

Choose the correct answer from the options given below:

1. A only
2. B only
3. C only
4. **B and C only**

55.

What is the main composition of the submucosa layer?

A. Collagen and elastic fibres

B. Smooth muscle cells

C. Glands for digestion, secretion, and absorption

D. Blood vessels and nerve plexuses

Choose the correct answer from the options given below:

1. **A only**
2. B only
3. C only
4. A and D only

56.

Q. In which layer do smooth muscle cells function in the peristaltic movement of the intestine?

A. Circular muscle layer

B. Longitudinal muscle layer

C. Serosa

D. Mucosa

Choose the correct answer from the options given below:

1. A only
2. B only
3. C only
4. **A and B only**

57.

Q. What is the primary shortcoming of re-generated collagen casings?

A. Poor permeability

B. Fragility and poor abuse resistance

C. Uneven size

D. Excessive shrinkage

Choose the correct answer from the options given below:

1. A only
2. **B only**
3. B and C only
4. A and D only

58.

What are the desirable features of re-generated collagen casings for making dry sausage?

A. Poor permeability and fragility

B. Uniformity in size and wall thickness

C. Uneven size and excessive shrinkage

D. Good abuse resistance

Choose the correct answer from the options given below:

1. A only
2. B only
3. **B and D only**
4. C only

59.

What material is used to produce edible synthetic casings for pork sausages?

A. Cellulose

B. Alginates

C. Natural casings

D. Collagen

Choose the correct answer from the options given below:

1. A only
2. **B only**
3. C only
4. D only

60.

Why is the direct conversion of raw, uncooked material into meat meal by sun drying considered inadvisable?

A. It is time-consuming

B. It spreads diseases

C. It is expensive

D. It causes rancidity

Choose the correct answer from the options given below:

1. A only
2. B only
3. **B and D only**
4. C and D only

61.

Q. What is the purpose of reducing the moisture to a minimum in the production of meat meal?

A. To increase bacterial growth

B. To prevent decomposition

C. To increase fat content

D. To economize on transport

Choose the correct answer from the options given below:

1. A and B only
2. **B and D only**
3. C and D only
4. B only

62.

What are the two main Reasons for removing fat during the boiling process?

A. To improve taste

B. Economic Reasons

C. To prevent burning

D. To increase moisture content

Choose the correct answer from the options given below:

1. A and B only
2. B and C only
3. **B only**
4. A and D only

63.

Why is it essential to boil bones together with the meat in the rendering process?

A. To add flavor to the meat

B. To recover fat from the bones

C. To prevent burning

D. To improve the taste of the product

Choose the correct answer from the options given below:

1. A and B only
2. B and C only
3. **B only**
4. B and D only

64.

Q. How is the draining process carried out to remove further moisture from the material?

A. The material is squeezed

B. The material is minced

C. The material is chopped

D. The material is drained in a basket for a specific duration

Choose the correct answer from the options given below:

1. A only
2. B, C, and D only
3. **D only**
4. A and D only

65.

What is the primary purpose of rendering in the context of fat extraction from animal tissues?

A. To improve the taste of fat

B. To separate oleo oil and oleo stearin

C. To preserve the tissues

D. To produce premier jus

Choose the correct answer from the options given below:

1. A and B only
2. **B and D only**
3. B only
4. C and D only

66.

What is the purpose of staining the fat during the rendering process?

A. To enhance the color of the fat

B. To prevent charring of the tissues

C. To improve the nutritional content

D. To speed up the cooling process

Choose the correct answer from the options given below:

1. A and B only
2. **B only**
3. B and C only
4. B and D only

67.

What is the recommended preservation method for glands like pancreas, pituitary, thyroid, and adrenal?

A. Freezing

B. Chemical preservation with acetone

C. Use of percent phenol

D. Use of percent formalin

Choose the correct answer from the options given below:

1. **A and B only**
2. A, B, and C only
3. A and C only
4. B and D only

68.

What is the purpose of immersing glands in acetone during the preservation process?

A. To eliminate fatty material

B. To inactivate enzymes

C. To increase shelf-life

D. All of the above

Choose the correct answer from the options given below:

1. A and B only
2. B and C only
3. A and C only
4. **D only**

69.

When should chemical methods of conserving glands be used?

A. Only when freezing is not possible

B. Only after consultation with manufacturers

C. When percent phenol is available

D. When percent formalin is not available

Choose the correct answer from the options given below:

1. A and B only
2. **B only**
3. A, B, and C only
4. B and D only

70.

Which hormone extracted from the pancreas is known as an antidiabetic?

A. Trypsin

B. Chymotrypsin

C. Amylase

D. Insulin (Pharmaceutical)

Choose the correct answer from the options given below:

1. A only
2. **D only**
3. B and C only
4. A, B, C, and D

71.

What is the main enzyme extracted from the pancreas and used in the tannery or cleaner industries?

A. Trypsin

B. Chymotrypsin

C. Amylase

D. Pancreatin

Choose the correct answer from the options given below:

1. C and D only
2. A, B, and C only
3. **D only**
4. A and B only

72.

How is insulin extracted from the b-cells of the pancreas?

A. By boiling

B. With the help of acidified methanol

C. By freezing

D. By chemical preservation

Choose the correct answer from the options given below:

1. A and D only
2. **B only**
3. C and D only
4. B and C only

73.

What hormone is extracted from the cortex of the adrenal gland and used in the treatment of Addison's disease?

A. Adrenaline

B. Nor-adrenaline

C. Corticosteroids

D. Thyroxin

Choose the correct answer from the options given below:

1. A and B only
2. **C only**
3. D only
4. A and C only

74.

Which hormone is extracted from the posterior lobe of the pituitary gland and functions as an antidiuretic hormone?

A. Adrenaline

B. Oxytocin

C. Vasopressin

D. Thyroxin

Choose the correct answer from the options given below:

1. A and D only
2. B and C only
3. **C only**
4. A and B only

75.

Q. What is the primary use of methane gas produced in bio gas plants using slaughter waste and other materials?

A. Fertilizer

B. Illumination

C. Cattle feed

D. Leather production

Choose the correct answer from the options given below:

1. A and B only
2. **B only**
3. C only
4. A, B, and C only

76.

What is the main component of cattle lick?

A. Copper sulphate

B. Red oxide salt

C. Bone ash

D. Bone meal

Choose the correct answer from the options given below:

1. A, B, and C only
2. **D only**
3. D and A only
4. D and C only

77.

What is the primary benefit of bone ash (calcide bone) when used as a fertilizer?

A. It enriches the soil with nitrogen.

B. It enriches the soil with phosphorus.

C. It improves the soil structure.

D. It increases the soil pH.

Choose the correct answer from the options given below:

1. A and C only
2. **B only**
3. B and D only
4. C only

78.

What is the primary material used to make both glue and gelatine?

A. Horns

B. Ossein

C. Bones

D. Offal

Choose the correct answer from the options given below:

1. A and D only
2. **B and C only**
3. C only
4. B only

79.

Q. What is the term used for the highest quality glue?

A. Gelatine

B. Ossein

C. Collagen

D. Offal

Choose the correct answer from the options given below:

1. **A only**
2. C only
3. B only
4. A and C only

80.

How is gelatine further divided into classes?

A. By source (e.g., bones or offal)

B. By color (e.g., white or brown)

C. By quality (e.g., edible or technical)

D. By region (e.g., European or Asian)

Choose the correct answer from the options given below:

1. A and D only
2. **C only**
3. B and C only
4. C and D only

81.

What is the recommended time frame for collecting the gland after slaughter?

A. 30 minutes

B. 1 hour

C. 15-20 minutes

D. 2 hours

Choose the correct answer from the options given below:

1. A and C only
2. B only
3. **C only**
4. D only

82.

What is the first step after collecting the gland?

A. Mincing

B. Immersing in acetone

C. Removing connective tissues

D. Drying under vacuum

Choose the correct answer from the options given below:

1. A and B only
2. C only
3. **B only**
4. D only

83.

What is the potential issue with vacuum-dried glands if not delivered quickly to the manufacturer?

A. Loss of potency

B. Rancidity of fat

C. Reduced income

D. Difficulty in preservation

Choose the correct answer from the options given below:

1. **A and B only**
2. B only
3. C only
4. A and D only

84.

In cattle, what is the average yield of hide as a percentage of live weight?

A. 5%

B. 7%

C. 10%

D. 15%

Choose the correct answer from the options given below:

1. A only
2. **B only**
3. C only
4. D only

85.

What is the purpose of flaying in the context of the slaughter process?

A. To extract blood

B. To separate bones

C. To skin the animal

D. To tenderize meat

Choose the correct answer from the options given below:

1. A only
2. **C only**
3. B and D only
4. C and D only

86.

What is the advantage of the described flaying technique in tropical and subtropical countries?

A. Maximum cuts for easy separation

B. Quick and efficient process

C. Preservation of blood in the skin

D. Asymmetrical skins with unique patterns

Choose the correct answer from the options given below:

1. A only
2. **B only**
3. C only
4. B and D only

87.

Which disease defect is caused by a mite called Demodex folliculorum, a parasite burrowing deep into the hair follicle?

A. Sarcoptic and soroptic mange

B. Streptothricosis

C. Follicular or demodectic mange

D. Nodular dermatitis

88.

Choose the correct answer from the options given below:

1. A and B only
2. **C only**
3. D only
4. A and C only

89.

What disease is caused by a virus and principally affects goats, leading to lesions similar to those made by Demodex?

A. Sarcoptic and soroptic mange

B. Streptothricosis

C. Nodular dermatitis

D. Lumpy skin disease

Choose the correct answer from the options given below:

1. A and B only
2. C only
3. **D only**
4. A, B, and C only

90.

What skin condition is caused by strong concentrations of tick-killing drugs or their improper use?

A. Photosensitization

B. Dermatitis

C. Warble Fly

D. Tick damage

Choose the correct answer from the options given below:

1. A and B only
2. C only
3. D only
4. **B only**

91.

Question:

Q. What disease is caused by a virus and principally affects goats, leading to lesions similar to those made by Demodex?

A. Sarcoptic and soroptic mange

B. Streptothricosis

C. Nodular dermatitis

D. Lumpy skin disease

Choose the correct answer from the options given below:

1. A and B only
2. C only
3. **D only**
4. A, B, and C only

92.

Question:

Q. What skin condition is caused by strong concentrations of tick-killing drugs or their improper use?

A. Photosensitization

B. Dermatitis

C. Warble Fly

D. Tick damage

Choose the correct answer from the options given below:

1. A and B only
2. C only
3. D only
4. **B only**

93.

Q. What skin sensitivity condition is caused by the ingestion of certain plants or drugs, affecting unpigmented areas covered by white hair in animals like Ayrshire and Friesian breeds?

A. Sarcoptic and soroptic mange

B. Dermatitis

C. Photosensitization

D. Follicular or demodectic mange

Choose the correct answer from the options given below:

1. A and B only
2. C only
3. D only
4. **C only**

94.

Q. Which insect, when not properly protected against, causes tremendous losses to hides and skins, as its larvae are capable of consuming a large part of the entire hide in a short period?

A. Warble Fly

B. Hide beetle (Dermestes)

C. Tick

D. Lice

Choose the correct answer from the options given below:

1. A and B only
2. C only
3. D only
4. **B only**

95.

Q. What is the average water content in bones?

1. **50%**
2. 15%
3. 12%
4. 23%

96.

What is the main constituent of the organic matter in bones that yields gelatine?

1. Marrow
2. Ossein
3. **Collagen**
4. Calcium

97.

Why is bone meal used in poultry feeds?

1. For its fat content
2. For its protein content
3. **For its calcium and phosphorus content**
4. For its organic matter

98.

What is the primary purpose of chilling intestines during the casings preparation process?

1. To enhance nutrient content.
2. **To arrest bacterial or fermentation processes.**
3. To improve the texture of casings.
4. To preserve color.

99.

Which casings require the process of turning?

1. Sheep casings.
2. Goat casings.
3. Pig casings.
4. **Beef casings.**

100.

What is the ideal temperature for fermentation during the casings preparation process?

1. 15°C (59°F).
2. **21°C (70°F).**
3. 25°C (77°F).
4. 30°C (86°F).

101.

How is sliming performed in the casings preparation process?

1. **Crushing between rollers.**
2. Immersion in a sliming solution.
3. Turning in a tank of warm water.
4. Measuring against a calibrated casing gauge.

102

Why is rock salt or coarse, crystalline salt not recommended for salting during the casings preparation process?

1. **It damages the casings.**
2. It enhances keeping quality.
3. It improves texture.
4. It accelerates fermentation.

103.

What are the specific requirements for casings to be classified under Grade I?

1. Natural colour without any discoloration.
2. Free from defects like holes, blisters, laceration, nodules, and cicatrices.
3. Intact and not torn or lacerated.
4. **All of the above**

104.

What is the additional requirement for rings or hanks under Grade I?

1. Slight variation in colour and folds.
2. **Proper curing with common salt.**
3. Free from black nodes, lacerations, or cicatrices.
4. Uniform natural colour, lustrous throughout without any spot or mark.

105.

What is the key distinction for casings classified under Grade II?

1. **Fit for use in the preparation of sausages.**
2. No deviation allowed in colour and strength.
3. Free from nodules.
4. Slight deviation allowed in colour and/or strength and wall.

106.

What is the primary difference between Grade III and Grade II casings?

1. **Nodules are permitted in Grade III.**
2. Slight deviation in colour is allowed in Grade III.
3. Both A and B.
4. No significant difference.

107.

For which purpose is Grade II casings specifically recommended?

1. Agreed requirements between the purchaser and exporter.
2. Domestic use only.
3. **Preparation of sausages.**
4. Exports with additional Grade X.

108.

What is the main component of the horn, distinguishing it from the horn pith?

1. Ossein
2. **Keratin**
3. Gelatin
4. Bone meal

109.

How is the horn pith (horn core) separated from the horn after the animal is slaughtered?

1. **Immersing in hot water**
2. Sawing off at the base
3. Cleaving with a hammer
4. Steaming for a few moments

110.

What is the primary use of horn pith in industrial processes?

1. Bone meal production
2. **Gelatin production**
3. Stock feed
4. Horn and hoof meal

111.

What is the nitrogen content in horn and hoof meal obtained from cattle?

1. 12-13%
2. **16-17%**
3. 20-22%
4. 25-28%

112.

What does the term "native" signify in the context of hides?

1. Hides from South American meatpacking plants
2. **Hides without any brands**
3. Hides with one or several brands
4. Hides from large meatpacking plants

113.

Which term is specifically used for hides originating in Texas?

1. Native hides
2. Colorado hides
3. Packer hides
4. **Texas hides**

114.

What distinguishes "packer hides" from other hides in terms of quality?

1. **They are sourced from centralized slaughter and supervision.**
2. They are flayed by less skilled workers.
3. They have multiple brands.
4. They are treated with inferior methods.

115.

What is the term used for hides obtained from South American meatpacking plants?

1. **Frigorifico hides**
2. Freezer hides
3. Colorado hides
4. Native hides

116.

What characterizes "freezer hides" produced in Australia or New Zealand?

1. They are of inconsistent quality.
2. They are obtained from less skilled flayers.
3. **They undergo a method of brining prior to salting.**
4. They are sourced from small meatpacking plants.

117.

What does the term "flaying" refer to in the context of animal processing?

1. Deboning operation
2. **Skinning operation**
3. Meat cutting operation
4. Sorting operation

118.

What is the purpose of pritch plates in large animal abattoirs?

1. To weigh the animal
2. To anchor the animal to the floor
3. **To assist in the skinning process**
4. To hold the pritch bar

119.

How are buffalo and cattle typically skinned in modern large animal abattoirs?

1. **On pritch plates**
2. On skinning cradles
3. On smooth floors
4. On metal rods

120.

What is the function of the pritch bar in the skinning process?

1. **To anchor the animal**
2. To lower the animal onto the plate
3. To assist skilled workers
4. To hold the steel tubing

121.

How are the legs opened during the hide removal process?

1. **By making an encircling cut**
2. By using a flaying knife
3. By cutting from the lower part of the breast
4. By making a longitudinal cut along the spine

122.

What is the purpose of the tail grip and gambrel in the hide removal process?

1. To anchor the carcass
2. To separate the thick subcutaneous tissue
3. **To connect to the hoisting gear**
4. To make an encircling cut

123.

How is the hide removed from the hind legs?

1. By making a cut behind the horns
2. By using a flaying knife
3. **By pulling off from the tail**
4. By making an encircling cut

124.

What characterizes a properly flayed hide?

1. Irregular dewlap
2. Unequal width from back to belly
3. **Rounded rumps**
4. Long length in the shanks

125.

What causes raised whitish spots on the flesh side of the hide or skin, resembling pox marks?

1. Sarcoptic and soroptic mange
2. Streptothricosis
3. **Demodex folliculorum**
4. Lumpy skin disease

126.

Which disease causes rough pitted leather with damaged grain due to parasites tunneling between the fibers of the corium?

1. **Sarcoptic and soroptic mange**
2. Streptothricosis
3. Follicular or demodectic mange
4. Nodular dermatitis

127.

What contributes to damage on cattle hides in the form of lumps, nodules, or round patches, leading to defects in the corium?

1. Nodular dermatitis
2. **Lumpy skin disease**
3. Photosensitization
4. Dermatitis

128.

What contributes to the damage on hides and skins derived from territories where tick control is practiced, caused by the strong concentration of tick-killing drugs?

1. Warble Fly
2. Tick damage
3. **Dermatitis**
4. Follicular or demodectic mange

129.

What is the approximate water content in green skins?

1. 52%
2. **62%**
3. 72%
4. 82%

130.

Why does contamination with blood, manure, or dirt increase bacterial growth during the preservation of hides and skins?

1. **It provides nutrients for bacteria.**
2. It reduces bacterial activity.
3. It prevents bacterial growth.
4. It increases hide substance.

131.

What are the basic principles of preservation for hides and skins?

1. Immediate delivery to the tannery.
2. Increasing bacterial flora.
3. Allowing bacterial growth.
4. **Creating conditions to prevent bacterial multiplication.**

132.

How is moisture reduced during the preservation of hides and skins?

1. Increasing air circulation.
2. Adding more moisture.
3. Using chemicals.
4. **Exposing hides and skins to free air circulation or using salt.**

133.

In the air-dried method, what is the final weight of a green hide weighing 100 lbs.

1. 38 lbs
2. **48 lbs**
3. 62 lbs
4. 72 lbs

134.

What is the purpose of the washing and soaking process during the conditioning of hides and skins at the tanneries?

1. To add more salt
2. To remove zinc chloride
3. **To restore the original shape and dimension**
4. To increase protein content

135.

What is the primary objective of the fleshing process during hide and skin conditioning?

1. To add lime
2. To remove hair
3. **To scrape off flesh with a serrated knife**
4. To tan the hides

136.

How is liming and dehairing performed during hide and skin conditioning?

1. Using a mix of soda ash and borax
2. Washing with weak acid
3. Scraping off flesh with a serrated knife
4. **A saturated solution of lime and 0.1% sodium sulphide**

137.

What is the purpose of bating in the conditioning process of hides and skins?

1. To add lime
2. To remove hair
3. To tan the hides
4. **To make the pelt soft and pliable**

138.

In which tanning method is pickling done, and what are the components of the pickling bath?

1. Vegetable tanning; 1% sulphuric acid and 10% salt
2. **Chrome tanning; 1% sulphuric acid and 10% salt**
3. Vegetable tanning; lime and sodium sulphide
4. Chrome tanning; lime and sodium sulphide

139.

Which of the following plants is NOT mentioned as a source for tanning extracts in the traditional tanning process?

1. Avarum (Cassis auriculata)
2. Babul (Acacia Arabia)
3. Myrabalan (Terminalia chebula)
4. **Coconut tree (Cocos nucifera)**

140.

Which tree's extract is used in the traditional tanning process and is associated with the name "Babul"?

1. Cassis auriculata
2. **Acacia Arabia**
3. Terminalia chebula
4. Cassia fistula

141.

What is the drawback of the traditional tanning process mentioned in the passage?

1. It is too fast.
2. It requires pickling.
3. It involves the use of synthetic chemicals.
4. **It takes a lot of time.**

142.

What is the primary purpose of slashing the skin and drenching it with crude phenol before burial?

1. To attract scavengers
2. To enhance decomposition
3. **To deter jackals**
4. To improve the burial process

143.

What precaution is taken specifically for the disposal of an anthrax-infected carcass in the burial method?

1. **Plugging orifices with cotton soaked in cresol**
2. Adding more soil to the burial pit
3. Using quick lime instead of mud
4. Igniting the carcass with kerosene

144.

In the burning or incineration method, what temperature is typically reached to effectively destroy carcasses and microorganisms?

1. 200-400°C
2. 400-600°C
3. **600-800°C**
4. 800-1000°C

145.

What is the alternative method suggested for burning dead animals if an incinerator is not available?

1. Chemical treatment
2. Deep burial
3. Landfill disposal
4. **Burning in a pit with wood and kerosene**

146.

How should premises be treated after disposing of animals that died from diseases not posing a health hazard?

1. **Disinfecting with lime water or a suspension of bleaching powder**
2. Burying all related items
3. Rinsing with water
4. Using phenol-soaked cotton

147.

What is an advantage of the semi-continuous wet rendering method compared to the conventional wet rendering method?

1. Higher-quality fat
2. **Shorter cooking time**
3. Lower fat meal production
4. Lower capital investment

148.

Given below are two statements:

Statement I: Blood clotting time for most domestic animals is 3 to 6 minutes.

Statement II: Blood collected for human use can only be obtained from abattoirs where slaughter is carried out on bleeding rails.

In light of the above statements, choose the correct answer from the options given below:

1. **Both Statement I and Statement II are true.**
2. Both Statement I and Statement II are false.
3. Statement I is true and Statement II is false.
4. Statement I is false and Statement II is true.

149.

Q. Given below are two statements:

Statement I: To prepare plasma, blood is collected quickly in an anticoagulant (trisodium citrate 4%, 1 ml for each 10 ml of blood).

Statement II: Serum is collected in the first 12 hours and is generally clear except for some suspended RBCs.

In light of the above statements, choose the correct answer from the options given below:

1. **Both Statement I and Statement II are true.**
2. Both Statement I and Statement II are false.
3. Statement I is true and Statement II is false.
4. Statement I is false and Statement II is true.

150.

Given below are two statements:

Statement I: Dried blood serum, referred to as blood albumen, is used as a substitute for dried egg albumen powder in the industry.

Statement II: The yield of albumen is 10-20% of the weight of the serum.

In light of the above statements, choose the correct answer from the options given below:

1. **Both Statement I and Statement II are true.**
2. Both Statement I and Statement II are false.
3. Statement I is true and Statement II is false.
4. Statement I is false and Statement II is true.

151.

Q. Given below are statements regarding the processing of split and soiled blood. Choose the correct answer from the options provided:

Statement I: Split and soiled blood is collected in drums and transported in closed vehicles within 4-6 hours for processing as fertilizers.

Statement II: Animal blood can be preserved by treating it with a 2% formalin or 2% Lysol solution and dried in the sun.

1. **Both Statement I and Statement II are true.**
2. Both Statement I and Statement II are false.
3. Statement I is true and Statement II is false.
4. Statement I is false and Statement II is true.

152.

Statement I: Pure gelatine is an amorphous and transparent substance with special colour, taste and smell.

Statement II: Glue is low-grade gelatine with comparatively transparent in colour and has only inedible uses.

1. Both Statement I and Statement II are true.
2. **Both Statement I and Statement II are false.**
3. Statement I is true and Statement II is false.
4. Statement I is false and Statement II is true.

**Additional information**

|  |  |
| --- | --- |
| [**Natural casings**](http://ecoursesonline.iasri.res.in/mod/page/view.php?id=63765)  | **Sausages** |
| Small intestine of cattle | Knackwurst |
| Small intestine of cattle | Ring Bologna |
| Small intestine of cattle | Mettwurst |
| Large intestine of cattle | Beef salami |
| Bung from cattle | Bung bologna |
| Bladder from cattle | Beef salami |
| Small intestine from swine | Smoked pork sausage |
| Stomach from swine | Pork headcheese |
| Caecum from swine | Italian pork sausage |
| Bladder from swine | Minced pork luncheon meat |

|  |  |
| --- | --- |
| Rounds | Animal casings derived from the small intestines of cattle, calves, sheep, goats and hogs. |
| Middles | Animal casings derived from large intestines of cattle and pigs. |
| Middle Cap or Cap | A casing prepared from the caecum of blind gut of the hog. |
| Bungs | Made from the caecum (beef bung and hog bung) containing approximately 5 to 6 feet (3 to 6 ft) of intestine starting from the anus called the “Crown”. |
| Bladders | Casings prepared from the urinary bladders of pigs and cattle |
| Weasands | Made from the mucosa of oesophagus of cattle. |
| Pig Stomachs | Casings prepared from stomach of pigs. |
| Runners | Casings prepared from small intestines of Cattle. |
| Small casings | Prepared from the small intestines of the hogs |
| Chitterlings or Black Guts | Casings prepared from a part of large intestines of hogs. |
| Sheep Casings | Prepared from small intestines of sheep. |
| Goat Casings | Prepared from the small intestines of goats. |
| Stomach | Casings prepared from the cleaned and sealed hog stomach; also called as “maws”. |