Meat Science and Technology

1. Introduction
   1.1 Terminology related to meat science
   1.2 Present situation of meat production, processing and marketing in Nepal.
   1.3 Statistics of meat animal total sharing and per capita consumption.

2. Handling meat animals during transport and at lairrage
   2.1 loading
   2.2 Spacing
   2.3 feeding and watering
   2.4 resying

3. Inspection of slaughter animals and birds
   3.1 Ante-mortem
   3.2 Postmortem

4. Bio-security and meat inspection Act 2055 of Nepal
   4.1 At farm and at slaughterhouse
   4.2 Basis of inspection
   4.3 Inspection of slaughterhouse and animal
   4.4 Qualifications of meat inspectors

5. Slaughter procedure and methods of stunning
   5.1 Different common methods of slaughter
   5.2 Bullet, Gas and hammering methods employed for stunning

6. Location and layout of abattoir
   6.1 Sight selection
   6.2 Lay out plan for different species and number animals and birds to be slaughtered

7. Slaughterhouse /and slaughter slab
8. Essentials and importance of potable water and ventilation and Light in slaughterhouse
   8.1 Potable water and its contribution
   8.2 Light and ventilation in slaughter house with their importance

9. Facilities required for health safety and by product utilization
   9.1 First priority for the health safety of worker
   9.2 Extra facilities establishment for byproduct utilization in slaughter plant

10. Environment impact, pollution their mitigation at Slaughterhouse.

11. Fabrication of whole sale and retail cuts for marketing

12. Animal welfare and means of transport of meat animals and birds
   12.1 How the animals be loaded and unloaded.
   12.2 Minimum discomfort should be provided to the animals and birds
   12.3 Consider the weather condition and number of animals to be loaded in truck and railways

13. Structure composition of muscle and associated tissues

14. The mechanism of muscle contraction and relaxation /Rigormortis and resolution of Rigormortis

15. Conversion of muscle into meat

16. Properties of fresh meat and factors affecting postmortem change

17. By products of meat industry

18. Hygiene practices
   18.1 Cleaning and sanitization of floor and walls
   18.2 Cleaning and sanitization of equipments
19. Meat preservation
   19.1 Cold methods
   19.2 Hot methods drying
   19.3 Curing
   19.4 Spices/condiments
   19.5 Chemicals
   19.6 Irradiation

20. Effects of cold storage with tendering (ageing) on collagen and muscle fibers

21. Effects of treatments with tendering agents on chemistry of animal tissues.

22. Tenderization of meat by different methods
   22.1 Ageing and conditioning
   22.2 Electrical stimulation
   22.3 Enzymes

23. Bacterial growths in meat
   23.1 Factors affecting growth of bacteria in meat
   23.2 Types of bacteria
   23.3 Bacterial action on meat and meat product.

24. Occurrence and significance of food poisoning in meat product.

25. Nutritional value of meat and meat product

26. Cured, frozen, dehydrated, emulsified meat products and their significance
   26.1 Pork sausage
   26.2 Frankfurter
   26.3 Bologna
   26.4 Salanr
   26.5 Hotdog
   26.6 Hamburger
   26.7 Bacon
   26.8 Luncheon
   26.9 Meat loaf
   26.10 Corned beef
27. Palatability characters of meat - color, aroma, flavor, tenderness, juiciness

28. Method of analysis: organoleptic, Chemical and physical

29. Packaging materials and methods of packaging meat and meat products

30. Meat grading

31. Factors influencing quality of meat
   31.1 pre- slaughters
   31.2 Physiological
   31.3 post slaughter
   31.4 post slaughter treatments
   31.5 Retail and consumer handling

33. Use of sausage ingredients their roles like nitrate, nitrate, sugar, phosphates, soy and corn flours etc.