1. **General :** Role of livestock in Indian economy and human health. Mixed farming, agro climate zones and livestock distribution. Socio-economic aspects of livestock enterprise with special reference of women.

2. **Genetics and Breeding :** Principle of genetic, chemical nature of DNA and RNA and their models and function. Recombinant DNA technology, transgenic animals, multiple ovulation and embryotransfer. Cytogenetics, immuno-genetics and biochemical and polymorphism and their application in animal improvement. Gene actions, systems and strategies for improvement of livestock of milk, meat, wool production and draught and poultry for eggs and meat. Breeding animals for disease resistance. Breeds of livestock, poultry and rabbits.

3. **Nutrition :** Role of Nutrition in animals health and production. Classification of feeds, proximate composition of feeds. Feeding standards, computation of rations, ruminant nutrition of total concepts of total digestible nutrients and starch equivalent system. Significant of energy, determinations. Conservation of feeds and fodder and utilization of agro-by-products. Feed supplement and additives. Nutrition deficiencies and their management.

4. **Management :** System of housing and management of livestock, poultry and rabbits, farm record, economics of livestock, poultry and rabbit farming, clean milk production veterinary hygiene with reference to water, air and habitation, sources of water and standards of potable water. Purification of water. Air hanges and thermal comfort. Drainage system and effluent disposal, biomass.

5. **Animal production :**

   (a) Artificial insemination, fertility and sterility. Reproductive physiology, semencharacteristics and preservation. Sterility its cause and remedies.

(b) Meat, egg and wool production, methods of slaughter of meat animals, meat inspection, judgment, carcass characteristics, adulteration and its detection processing and preservation. Meat products, quality control and nutritive value. By products, physiology of egg production, nutritive value grading of eggs preservation and marketing. Types of wool, grading and marketing.

6. **Veterinary science :**

(i) Major contagious diseases affecting cattle, buffaloes, horses, sheep and goats, pig, poultry/rabbits and pet animals. Etiology, symptoms, pathogenicity, nagenesis, treatment and control of major bacterial viral racketsial and parasitic infections.

(ii) Description, symptoms, diagnosis and treatment of the following -

(a) Production disease of much animals, pig and poultry.

(b) Deficiency disease of domestic livestock and birds.

(c) Poisonings due to infected/contaminate foods and feeds, chemicals and drugs.

7. **Principles of immunization and vaccination :** Different types of immunity, antigens and antibodies. Methods of immunization. Breakdown of immunity, vaccines and their use in animals. Zoonosos food-borne infections and intoxications. occupation hazards.

8. (a) Poisons used for killing animals - cuthanasia

(b) Drugs used for increasing production/performance efficiency and their adverse effects.

(c) Drugs use to tranquilize wild animals as well as animals in captivity.

(d) Quarantine measures in India and abroad Act, Rules and Regulations.

9. **Diary science :** Physics-Chemical and nutritional properties of milk quality assessment of milk and milk products. Common tests and legal standards. Cleaning and sanitization of dairy equipment. Milk collections, chilling. transportation processing, packing storage and distribution. Manufacture of market milk, cream, butter, cheese, ice-cream, condensed and dried milk by products and Indian products.

Unit operations In diary plant.

Role of microorganism in quality of milk and milk products. Physiology of milk secretion.