

UPSC Mains Animal Husbandry and Veterinary Science

Optional Paper-II Syllabus

1. Anatomy, Pharmacology and Hygiene:

1.1 Histology and Histological Techniques : Paraffin embedding technique of tissue processing and H.E. staining Freezing microtomy-Microscopy Bright field microscope and electron microscope. Cytology-structure of cell organelles and inclusions; cell division-cell types-Tissues and their classification-embryonic and adult tissues-Comparative histology of organs-Vascular, Nervous, digestive, respiratory, musculoskeletal and urogenital systems-Endocrine glands-Integuments-sense organs.

1.2 Embryology. Embryology of vertebrates with special reference to aves and domestic mammals gametogenesis-fertilization-germ layers-fetal membranes and placentation-types of placenta in domestic mammals-Teratology-twins and twinning- organogenesis-germ layer derivatives-endodermal, mesodermal and ectodermal derivatives.

1.3 Bovine Anatomy.-Regional Anatomy: Paranasal sinuses of OX-surface anatomy of salivary glands. Regional anatomy of infraorbital, maxillary, mandibuloalveolar, mental and coronal nerve block. Regional anatomy of paravertebral nerves, pudendal nerve, median, ulnar and radial nerve tibial, fibular and digital nerves-Cranial nerves-structures involved in epidural anesthesia-superficial lymph nodes-surface anatomy of visceral organs of thoracic, abdominal and pelvic cavities-comparative-features of locomotor apparatus and their application in the biomechanics of mammalian body.

1.4 Anatomy of Fowl. Musculo-skeletal system- functional anatomy in relation to respiration and flying, digestion and egg production.

1.5 Pharmacology and therapeutics drugs. Cellular level of pharmacodynamics and pharmacokinetics. Drugs acting on fluids and electrolyte balance. Drugs acting on Autonomic nervous system. Modern concepts of anesthesia and dissociative anesthetics. Autocoids. Antimicrobials and principles of chemotherapy in microbial infections. Use of hormones in therapeutics-chemotherapy of parasitic infections. Drug and economic concerns in the Edible tissues of animals-chemotherapy of Neoplastic diseases. Toxicity due to "insecticides, plants, metals, non-metals, zootoxins and mycotoxins".

1.6 Veterinary Hygiene with reference to water, air and habitation. Assessment of pollution of water, air and soil-Importance of climate in animal health- effect of environment on animal function and performance relationship between industrialization and animal agriculture-animal housing requirements for specific categories of domestic animals viz. pregnant cows and sows, milking cows, broiler birds-stress, strain and productivity in relation to animal habitation.

2. Animal Diseases:

2.1 Etiology, epidemiology pathogenesis, symptoms, post-mortem lesions, diagnosis, and control of infectious diseases of cattle, sheep and goat, horses, pigs and poultry.

2.2 Etiology, epidemiology, symptoms, diagnosis, treatment of production diseases of cattle, horse, pig and poultry.

2.3 Deficiency diseases of domestic animals and birds.

2.4 Diagnosis and treatment of non-specific conditions like impaction, Bloat, Diarrhoea, Indigestion, dehydration, stroke, poisoning.

2.5 Diagnosis and treatment of neurological disorders.

2.6 Principles and methods of immunization of animals against specific diseases hard immunity-disease free disease 'concept-zones-zero' chemoprophylaxis.

2.7 Anaesthesia.-local, regional and general- preanesthetic medication. Symptoms and surgical interference in fractures and dislocation. Hernia, choking abomasal displacement-Caesarian operations. Rumenotomy-Castrations.

2.8 Disease investigation techniques. Materials for laboratory investigation-Establishment. Animal Health Centres Disease free zone.

3. Veterinary Public Health:

3.1 Zoonoses. Classification, definition, role of animals and birds in prevalence and transmission of zoonotic diseases occupational zoonotic diseases.

3.2 Epidemiology. Principle, definition of epidemiological terms, application of epidemiological measures in the study of diseases and disease control. Epidemiological features of air, water and foodborne infections. OIE regulation, WTO, sanitary and phytosanitary measures.

3.3 Veterinary Jurisprudence. Rules and Regulations for improvement of animal quality and prevention of animal diseases State and Central Rules for prevention of animal and animal product borne diseases S.P. C.A.-Veterolegal cases- Certificates Materials and Methods of collection of samples for veterolegal investigation.

4. Milk and Milk Products Technology:

4.1 Market Milk. Quality, testing and grading of raw milk. Processing, packaging, storing, distribution, marketing defects and their control. Preparation of the following milks: Pasteurized, standardized, toned, double-toned, sterilized, homogenized, reconstituted, recombined and flavoured milks. Preparation of cultured milks, cultures and their management, yoghurt, Dahi, Lassi and Srikhand. Preparation of flavoured and sterilized milks. Legal standards. Sanitation requirement for clean and safe milk and for the milk plant equipment.

4.2 Milk Products Technology.-Selection of raw materials, processing, storing, distributing and marketing milk products such as Cream, Butter, Ghee, Khoa, Channa, Cheese, condensed, evaporated, dried milk and baby food, Ice cream and Kulfi; by-products, whey products, buttermilk, lactose and casein. Testing, grading, judging milk products-BIS and Agmark specifications, legal standards, quality control nutritive properties. Packaging processing and operational control. Costing of dairy products.

5. Meat Hygiene and Technology:

5.1 Meat Hygiene

5.1.1 Ante mortem care and management of food animals, stunning, slaughter and dressing operations; abattoir requirements and designs; Meat inspection procedures and judgement of carcass meat cuts- grading of carcass meat cuts duties and functions of Veterinarians in wholesome meat production.

5.12 Hygienic methods of handling production of meat.— Spoilage of meat and control measures- post-slaughter physicochemical changes in meat and factors that influence them-Quality improvement methods Adulteration of meat and detection- Regulatory provisions in Meat trade and Industry.

5.2 Meat Technology

5.2.1 Physical and chemical characteristics of meat. Meat emulsions- methods of preservation of meat- curing, canning, irradiation, packaging of meat and meat products, processing and formulations.

5.3 By-products. Slaughterhouse by-products and their utilisation-Edible and inedible by-products- Social and economic implications of proper utilisation of slaughterhouse by-products-Organ products for food and pharmaceuticals.

5.4 Poultry Products Technology.-Chemical composition and nutritive value of poultry meat, pre-slaughter care and management. Slaughtering techniques, inspection, preservation of poultry meat and products. Legal and BIS standards.

Structure composition and nutritive value of eggs Microbial spoilage. Preservation and maintenance. Marketing of poultry meat, eggs and products.

5.5 Rabbit/Fur Animal Farming. Rabbit meat production. Disposal and utilization of fur and wool and recycling of waste by-products. Grading of wool.

