

NOTIFICATION NO: 17-PSC (DR-P) OF 2023 DATED: 15.05.2023

Syllabus – Veterinary Technology

Veterinary Anatomy

Gross anatomy of bone, different joints of the animal body & their classification, muscles, heart & blood vessels, nervous system, body cavities, visceral organs in principal domesticated animals and birds, biomechanics, histology & embryology of different body systems.

Veterinary Physiology

Blood composition & functions. Haemostatis. Morphological characteristics of heart, conduction system, cardiac cycle. Electero-physiology of heart & regulation of cardiac functions. Haemodynamics, circulatory control & regional circulation. Functional morphology of nephron, urine formation & concentration mechanism. Electrolyte & Water balance acidbase balance. Neuron structure, classification, synapse, receptors, properties of nerve fibres, reflexes, ANS, higher function of neuron. Structure & functions of monogastric & polygastric digestive system. Endocrine glands. Hormones & their functions. Lactation, mamogenesis, galatopoesis, milk let down, composition of milk, colostrums. Growth & animal behaviour. Influence of environment on growth, production & reproduction. Thermoregulation & climatology. Respiratory system of animals and respiratory mechanism.

Veterinary Biochemistry

Chemistry & biological significance of carbohydrates, lipids, proteins, nucleic acids, vitamins & hormones. Biological oxidation, energy metabolism of carbohydrates, lipids, amino acids & nucleic acids.

Animal Nutrition

Proximate principles and fibre fractions, digestion and metabolism of carbohydrates, proteins and fats in ruminants and non-ruminants, energy partitioning in body, measures of protein quality, general functions of minerals and vitamins and associated disorders, classification of feed stuffs, common anti-nutritional factors and unconventional feedstuffs. Hay and silage making, improvement of poor quality roughages, Nutritional disorders of livestock.

Animal Genetics & Breeding

History of Animal Breeding, classification of breeds, Economic characters of Livestock and poultry and their importance. Breeding/ Selection techniques for optimal production, Selection: Response to selection and factor affecting it. Bases of selection; individual, pedigree, family, sib, progeny and combined, indirect selection and Multitrait selection, classification of mating system, inbreeding and out-breeding, genetic and phenotypic consequence Viz. inbreeding depression and heterosis, system of utilization of heterosis crossbreeding, sire evaluation, field progeny testing, Open nucleus breeding system (ONBS), Sheep, goat, swine and poultry breeding programmes in the state and country. History of

genetics, chromosome nos., and types of different specifications including poultry, Mitosis, Meiosis & Gametogenesis. Overview of Mendelian Principles, Modified Mendelian inheritance Mutation, Chromosome aberration & Cytoplasm inheritance, Gene Interaction, Epistasis, Multiple alleles, Lethals, sex limited, sex linked & sex influenced traits, linkage & crossing over. Genotype concept – classical and molecular, population genetics, genetic structure of population, gene frequency, genotype frequency, Hardy-Weinberg law & its application, Forces (Mutation, Migration, Selection & Drift) changing gene & genotype frequencies, quantitative genetics, nature & properties, values & means-pop mean, average effect, components of phenotypic & genotypic variance, concept of genotype and environmental interaction, resemblance between relatives & heritability, repeatability genetic & phenotypic correlation. Basics of statistics, data analysis and computational techniques.

Livestock Production Management

General concepts of livestock production and management, status of dairy and poultry industry, impact of livestock farming in Indian Agriculture, livestock housing, production and reproduction management, lactation management, breeding programmes for livestock and poultry. Composition, quality and preservation of livestock products, methods of processing and storage of livestock products, international trade/WTO/IPR issues related to livestock products.

Livestock Product Technology

Structure, composition and nutritive value of milk, meat and egg. Preservation and packaging of milk, meat and egg, processing of livestock products, organic and genetically modified livestock products, legal standards of milk and meat products, sensory evaluation of livestock products, layout and management of abattoir, slaughtering techniques, ante mortem and post mortem examination, conversion of muscles to meat, glandular and non glandular by products, fraudulent substitution of meat and its recognition, wool sampling, grading and processing.

Veterinary Pharmacology & Toxicology

Source and nature of drugs, pharmacokinetics, drugs acting on different body systems. Antimicrobial agents – their mechanism, therapeutic indication, toxicity & resistance. Toxicity & treatment of important metals, non-metals poisonous plants, agro- chemicals and mycotoxins.

Veterinary Pathology

History and scope of pathology, predisposing factors, intrinsic and extrinsic factors, disturbances of circulation/ haemodynamic derangements. Pigment metabolism, pathological calcification/ ossification, degenerative changes, inflammation, healing, immunopathology, immune mediated tissue injury, hypersensitivity reactions. Genetic abnormalities, Disturbance in cell growth, neoplasms. Post mortem examination, histopathology, histochemistry, histoenzymology, electron microscopy, clinical laboratory examination of complete blood haemogram serum enzymology, bone marrow examination, urine, skin scrapings stools. CSF and milk for pathological constituents and interpretation of results. Pathology of cardiovascular, haemopoietic respiratory, digestive, urinary, genital, nervous and musculoskeletal systems, endocrine glands, organ of special senses i.e. eye, ear, skin, appendages. Pathology of bacterial, mycotic viral, mycoplasmal, rickettsial, chlamydial and parasitic diseases. Diseases caused by prions. Pathology of nutritional deficiency disease. Etiopathology of common diseases of laboratory, wild and aquatic animals.

Veterinary Parasitology

General classification, morphology, life cycle, epidemiology, symptoms, pathogenesis, diagnosis, immunity and control of important parasitic diseases (Helminths, protozoa and arthropods) of veterinary importance.

Veterinary Microbiology

Classification & growth characteristics of bacteria, important bacterial diseases of livestock and poultry, general characters, classification of important fungi. Nature of viruses, morphology and characteristics, viral immunity, important viral diseases of livestock and poultry, viral vaccines, antigen and antibody, antibody formation, immunity, allergy, anaphylaxis, immunoglobulins, complement system.

Veterinary Extension Education

Concept of sociology, differences between rural, tribal and urban communities, social change, factors of change, principles and steps of extension, community development-aims, objectives, organizational set up and concept evolution of extension in India, extension teaching methods. Role of livestock in economy. Identifying social taboos, social differences, obstacles in the way of organizing developmental programmes. Concept of marketing, principles of cooperative societies, animal husbandry development planning and programme, key village scheme, ICDD, Gosadan, Goshalla, role of gram panchayat in livestock development.

Veterinary Public Health and Epidemiology

Role of veterinarians in public health, one health concept and initiatives, sources of contamination, Principles and concepts of food hygiene and safety, Milk hygiene in relation to public health, Zoonotic diseases through milk and meat and approaches to their management, emerging, re-emerging and occupational zoonoses, Zoo animal health, epidemiology-aims, objectives, ecological concepts and applications.

Veterinary Medicine

Clinical examination and diagnosis, etiology, epidemiology, symptoms, prognosis, treatment and control of infectious and non-infectious diseases affecting different body systems of various species of domestic animals. Deficiency diseases, metabolic diseases, metabolic disorders.

Veterinary Gynaecology & Obstetrics

Practice of artificial insemination, pregnancy diagnosis, clinical examination and management of cases of anoestrous, silent oestrous, infertility and conception failure. Treatment of cases of metritis, cervicitis, vaginitis. Handling and management of cases of retention of placenta ante and post partum prolapse of vagina, uterine prolapse, dystocia, evaluation of bulls, neutring/ovariohysterectomy/castration. Common drugs and hormones used in reproductive disorders including infertility. *in-vitro* fertilization & maturation, synchronization of oestrous and ovulation, superovulation, embryo transfer, cloning, sperm sexing.

Veterinary Surgery & Radiology

Asepsis-antisepsis, management of shock, haemorrhage. Symptoms, diagnosis and management of wound, abscess, tumours, cyst, haematoma, necrosis, gangrene. Anaesthesia, pre-anaesthetics, local analgesia. General anaesthesia & anaesthetic agent (barbiturates, dissociative agents). Anaesthetic emergencies and their management. Interpreting X-ray films, classification of radiographic lesions. Introduction to contract radiography, radiation hazards and their prevention, principles of ultrasonography. Surgical conditions of different body organs and systems and their management.