

SYLLABUS FOR WRITTEN EXAMINATION FOR PAPER-I (Objective type)

SUBJECT PAPER: ANIMAL HUSBANDRY AND VETERINARY SCIENCE **(P.G. DEGREE STANDARD)**

UNIT - I: GENERAL:

Role livestock management - food security - Current Livestock Development programmes and policies of State and Nation - Legislation for control of animal diseases - Legal duties of Veterinarian - Common offences against animals and laws governing import and export of animals - Certification of products.

UNIT - II: ANIMAL BREEDING AND GENETICS, ANIMAL NUTRITION AND LIVESTOCK PRODUCTION AND MANAGEMENT

Important breeds of cattle, buffalo, sheep, goat, pig and poultry with special reference to economic characters. Animal breeding - Aids to selection, methods of selection and culling - current breeding policies and programmes in state and the Nation - Breeding methods - different mating systems. Population Genetics - Hardy Weinberg law, Effects of selection, migration, and mutation - Gene frequency. Economic traits, Genetic parameters - Molecular techniques and their application in animal breeding. Wild breeding in captivity life.

Nutritional terms and definitions - Proximate composition of feeds - digestion and metabolism of nutrients in ruminants and non-ruminants. Importance of minerals and Vitamins in ruminants & non ruminants - classification of feeds and fodders - storage and conservation of feeds and fodders -feeding standards - formulation of rations and feeding of dairy cattle and buffaloes - Utilisation of unconventional feeds animal by - products - wild life nutrition. Use of feed additives, antibiotics and hormones. Antinutritional factors and methods of removing them. Hydroponic fodder - nano nutrients.

Common terms used in Animal Husbandry - Identification, Dentition and Age of animals – Watering livestock - Removal and disposal of manure and other animal waste - Effect of environment on the health and productivity of livestock and measures to counteract it - Different systems of housing, Housing standards for various livestock - Hatchery

management - Different systems of poultry management - sexing and brooding of chicks - Common symptoms of diseases and control measures - Farm record maintenance - Judging of cattle. Climate change - global warming - Carbon credits.

UNIT- III : LIVESTOCK PRODUCTS TECHNOLOGY (DAIRY SCIENCE AND MEAT SCIENCE)

Composition of milk and milk products, clean milk production, processing, storage and transportation. Preparation of milk powder, cream, butter, ice cream, cheese and ghee. Role of milk and milk products in human nutrition, Detection of adulterants in milk. Food safety Norms FSSAI

Ante mortem and post mortem inspection, - objectives of meat inspection - methods of slaughter - Various techniques of preservation & packaging of meat and meat products - preservation of eggs. Utilization of slaughter house by-products, role of meat and egg in human nutrition.

UNIT - IV : ANIMAL HUSBANDRY EXTENSION AND ECONOMICS

Principles of extension education - Extension teaching methods, Audio visual aids - Characteristics of rural & urban societies. Adopter categories and factors influencing adoption of technologies, Panchayat Raj. Selection and training of leaders. ICT initiatives in Livestock Sector, State and Central Governmental Schemes.

Role of animals in the economy of livestock owners. Statistics of animal and poultry - State wise and nation. Milk and sheep co-operatives - Marketing of livestock and its products. Preparation of feasibility reports and projects (Economics of a dairy unit, poultry, piggery, sheep & goat units). Per capita availability and consumption of milk, meat and egg. Impact of AH programs in the state.

UNIT- V : VETERINARY ANATOMY AND PHYSIOLOGY

Gross study of bones, joints and muscles of skeleton. Gross study of heart and its conduction system. Gross study of organs of digestive, respiratory urinary and reproductive systems.

Digestion, metabolism and absorption of carbohydrates, proteins and fats in simple stomach animals and ruminants - mechanism of respiration. General functions of blood

(blood cells, plasma & serum) coagulation, blood groups in animals, cardiac cycle, Blood circulation, Blood pressure, renal function. Hormonal control of Lactogenesis.

UNIT- VI : SURGERY & RADIOLOGY

General surgical principles - Asepsis and Antisepsis - sutures and suturing methods - Pre medication and Anaesthesia (Local Regional and General) - Common surgical affections and operative procedures (Wound, Fracture, and dislocation) - cosmetic surgical operations - Imaging techniques – Pre operative and post operative care of animals - Intensive care - Physiotherapy - Diathermy – Surgical Emergencies.

UNIT - VII : GYNAECOLOGY & OBSTETRICS

Role of hormones in various phases of reproduction in female & male - Symptoms of estrus and estrous cycle - Embryo Transfer Technology - Fertility and infertility in female & male, diagnosis and treatment - Pregnancy diagnosis - Diseases and accidents during gestation, Abortion - Causes and treatment, Stages of parturition in domestic animals - Types of dystocia, handling, diagnosis and treatment, post partum diseases, and complications - Collection and evaluation and preservation of semen - Handling of frozen semen - Techniques of AI- Breeding soundness examination of bulls - Castration in different species.

In-vitro fertilization - Transgenic animal production - Sexing of gametes and embryos - Herd health improvement programme.

UNIT - VIII : MICROBIOLOGY AND PREVENTIVE MEDICINE

Bacteriology & Mycology: Classification - Isolation, identification and culturing of bacteria and fungi - Methods of transmission of infection - Sterilization and disinfection - Antibiogram.

Virology: Classification - Cultivation, replication General characteristics of various families of RNA and DNA viruses.

Immunology: Type and grade of immunity - Various tests used to detect antibody level - Vaccines.

Epidemiology of important infectious diseases caused by Bacteria, Virus, Rickettsial, fungus and parasites - Diagnosis, differential diagnosis, prevention, control and

eradication. Disease outbreak investigation, monitoring, sero surveillance and disease forecasting.

UNIT - IX : PATHOLOGY AND PARASITOLOGY

General Pathology: Causes of diseases - Neoplasm - Disturbances of cell metabolism and growth.

Systemic Pathology: Cardio vascular, respiratory, digestive, genital, nervous and skin. Pathology of important diseases caused by bacteria, virus, fungi, helminths and protozoa in livestock and poultry.

Clinical Pathology: Examination of clinical materials, post mortem techniques, vitro – Legal implications - Collection and despatch of materials.

Classification of parasites arthropodes - General life cycle, mode of transmission, pathogenesis, diagnosis and control of Cestodes, Nematodes, Trematodes, use and abuse of anthelmintics, anthelmintic resistance and Protozoa in animals and birds. Parasites of zoonotic importance - Anti-parasitic vaccines.

UNIT - X : CLINICAL MEDICINE & THERAPEUTICS AND PHARMACOLOGY & TOXICOLOGY

General - Special and systemic clinical examinations, diagnostic equipment. Etiology, clinical symptoms, pathogenesis, diagnosis, treatment, prevention and control of metabolic diseases. Deficiency diseases - Minerals and vitamins - Fluid therapy, intensive care - Ethics and jurisprudence in domestic and wild animals - Interpretation of laboratory results.

Drug action - Pharmacokinetics (absorption, distribution, biotransformation and excretion), Pharmacodynamics - Local and general anaesthetics - Antibiotics and chemotherapy – Toxicology, Ethno veterinary medicine.