

ANNEXURE - I**ANIMAL HUSBANDRY AND VETERINARY SCIENCE**
(UG DEGREE STANDARD)**SUBJECT CODE:396****UNIT-I: GENERAL**

Livestock Population Census in the nation and state, - Role of livestock and their products in the Indian economy and human health, current livestock programs and policies of State and Nation Policy note on Animal Husbandry, Government of Tamil Nadu -Economics of dairy, sheep, goat, poultry, pig and rabbit farming; Livestock project preparation, constraints to the live stock development programs, common offenses against animals - SPCA, Animal Welfare Board of India, NGOs. Livestock marketing and Livestock entrepreneurship.

UNIT-II: LIVESTOCK PRODUCTION MANAGEMENT

Common terms used in Animal Husbandry- Dentition and ageing of animals- Livestock and poultry breeds and breed characters, housing systems for different classes of livestock, and requirements of space, ventilation, water, sanitation, and waste disposal. Management of milk, meat, egg, and wool-producing livestock, management of calves and heifers, management of breeding bulls, draught animal power, rearing buffaloes for meat, organic livestock production, small ruminant production systems, economic traits of cattle, sheep and goat. Farm records and their maintenance, strategies for livestock improvement for enhancing productivity. Systems of swine production in India, Exotic and indigenous breeds of pigs, Housing condition requirements for different classes of swine, feeding management for different classes of swine, breeding sow and boar management, piglet management, fattener management. Indian breeds of horses, Equine housing, feeding and breeding management. Importance and significance of laboratory animal production and management, Wild animals in captivity and management.

UNIT-III: ANIMAL NUTRITION

Nutritional terms and definitions - Role of nutrition in health and production- Feed and fodder classification, composition, anti-nutritional factors, and toxins- Requirements of nutrients for different categories of livestock/poultry and formulation of least cost rations-Feeding of pet animals-BIS specifications for livestock and poultry feeds-Nutritional deficiency and its influence on livestock performance -Feed supplements and additives-Conservation and preservation of feed and fodders - Economic utilization of agro-industrial by-products for feeding livestock - Utilization of unconventional feeds - Feeding of captive wild animals and birds-Quality control of feed-Feed milling technology-Feedblock/baling- By-Pass Proteins and by-pass Fat - Feeding livestock during scarcity - Metabolic disorders in Livestock and Poultry Processing of feed and forage to improve nutritive value-Use of NPN compounds for ruminants.

UNIT-IV: LIVESTOCK BREEDING AND GENETICS

Important breeds of cattle, buffalo, sheep, goat, pig, and poultry with special reference to economic characters-Principles of Genetics, Cytogenetics, and Basis of Population Genetics, Genetic parameters- Nature of DNA and RNA, their models and functions –Selection of livestock for production, reproduction, and disease resistance traits–Response to selection - Mating systems including Nucleus Breeding Schemes - Current livestock and poultry breeding policies and programs in the state and country-Applications of Recombinant DNA technology, Cloning, Transgenesis, and Marker-Assisted Selection - Conservation of Animal Genetic Resources.

UNIT-V: VETERINARY ANATOMY, PHYSIOLOGY, AND BIOCHEMISTRY

Gross study of bones of Ox and differences in Horse, Dog, Pig and Fowl, Joints and Muscles of Skeleton of Ox, Gross study of Heart and Conduction system, General plan of Pulmonary and systemic circulation, Gross anatomy of Brain and Spinal cord, the Gross study of organs of the digestive, respiratory, urinary and reproductive system of Ox, Horse, Dog, Pig and Fowl, Systemic histology.

Mechanism of respiration. General functions of blood (blood cells, plasma & serum) coagulation, cardiac cycle, Blood circulation, Blood pressure, renal function Hormonal control of Lactogenesis. Environmental factors affecting animal production–Environmental stress on animal performance–Green Houses Gases – Role of ruminants. Endocrine System-Functional aspects of hormones in Systemic Physiology. Renal system-Counter Current Mechanism-Acid Base Balance.

Enzymes: Definition and classification. Clinical Enzymology - Diagnostic importance of non-functional plasma enzymes and Isoenzymes; Carbohydrate metabolism and its disorders: Glycolysis, Krebs cycle, Carbohydrate fermentation pathway. Disorders – Diabetes mellitus, Bovine Ketosis, Pregnancy toxemia, Lactic acidosis and Bloat in ruminants; Lipid metabolism and its disorders: Beta oxidation of fatty acids, ketone body formation, Disorders- Bovine Ketosis, Pregnancy toxemia; Lipid Profile in disease diagnosis; Protein metabolism and its disorders: Urea cycle and Urea poisoning in ruminants. Utilization of NPN compounds by ruminants; Organ Function tests: Liver function and Renal function tests-Biochemical tests for differential diagnosis.

UNIT – VI: VETERINARY MICROBIOLOGY, PUBLIC HEALTH, AND PREVENTIVE MEDICINE

General and Systematic Veterinary Bacteriology – Bacterial Diseases of Veterinary Importance in relation to Isolation, Culture, Morphology, Biochemical and Antigenic Characteristics, Pathogenesis, Diagnosis, and control. Veterinary Mycology–Important Pathogenic Fungi in relation to Isolation, Culture, Morphology, Biochemical and Antigenic Characteristics, Pathogenesis, Diagnosis, Prevention, and Control. General and Systematic

Veterinary Virology – Structure, Viral Replication, Viral Pathogenesis, Viral Interaction, and Oncogenesis – Important Veterinary Viral Diseases – RNA and DNA Viruses, Cultivation, Pathogenesis, Clinical Sciences, and Diagnosis. Veterinary Immunology – Antigen – Types of Immunity, Antigen and Antibody, Concepts of Immunity and Microbes, Vaccine and other Biologicals –Antigen and Antibody-based Diagnostic Test and Microbial Biotechnology.

Epidemiology–definitions, terms, triad, concept, scope, objectives, and uses. Monitoring and surveillance, epidemiological disciplines, methods, mode and route of disease transmission, rates, ratios, the occurrence of disease, properties of diagnostic tests, the gradient of infection, and pattern of diseases. Epidemiology, treatment, prevention, and control of common bacterial, viral, fungal, rickettsial, protozoan, ectoparasitic and endoparasitic diseases of livestock, poultry, companion animals, and wildlife species, regional - emerging and re-emerging important diseases. Allergic skin tests, modern diagnostic techniques, and vaccination protocol for infectious diseases.

Role of Veterinarians in public health, one health concept- Milk Hygiene, Meat Hygiene - Foodborne diseases and Food Safety, Zoonoses - Classification, Zoonotic diseases of bacterial, viral, fungal, parasitic and rickettsial origin-Prevention and control of Zoonotic Diseases - Emerging and Re-Emerging Zoonoses -Biodiversity -Environmental contaminants in the food chain - Air, water, Thermal, radiation and land pollution - water purification, Chlorination - Sanitation and disinfection of farm and hospital -Management of waste from animal industries - Role of Pollution Control Board in India - Disaster Management – Vector control and reservoir control.

UNIT-VII: PATHOLOGY, PARASITOLOGY, AND PHARMACOLOGY

General concepts and etiology of diseases in animals; Common pathological conditions seen in domestic, wild, zoo, and laboratory animals and birds. Veterinary clinical pathology methods (with special reference to hematology, urinalysis, biopsy, and cytology) as rapid diagnostic methods. General oncology and pathology of various types of tumors in domestic animals. General principles and procedures of necropsy; Collection, preservation, and dispatch of morbid materials for laboratory diagnosis; Vetero-legal necropsy procedures.

Classification of Parasites–Parasite and parasitism in animals; important morphological features, life-cycles, mode of transmission, pathogenesis, diagnosis, chemotherapy, prophylaxis, and general control measures of parasites associated with disease in animals, birds, captive and free range wild animals.

Drug action–Pharmacokinetics (absorption, distribution, metabolism, and excretion), Pharmacodynamics – (types and structure of receptors. Dose-response curve)-Anaesthetics(local and general), analgesics, sedatives – drugs for euthanasia of animals – Chemotherapy (general principles including resistance, antibacterials, anthelmintics,

antiprotozoals) – Toxicology (toxicity of pesticides, herbs, venoms, and toxins) –pharmacy (pharmaceutical calculations, prescription writing)– useful herbal preparations.

UNIT-VIII: EXTENSION EDUCATION

Farming and types of farming in India. Early extension efforts in India. Extension Education – Principles, philosophy, objectives, dimensions. Extension Educational Process. Teaching and learning process. Rural development programs. Panchayati Raj. Sociology and Rural sociology in animal husbandry extension–culture, tribal, rural and urban communities, social control, social stratification, social institutions, social change, leadership. Adoption and diffusion of innovations – innovation-decision process, attributes of innovations, adopter categories, factors affecting adoption and diffusion process, and the role of change agents. Extension program planning and evaluation. Livestock and poultry development programs in India. TOT Projects of ICAR. Communication – Process, elements, theories, and methods. ICT and their application in the livestock sector. Gender and animal husbandry. Sustainable livestock production.

UNIT-IX: VETERINARY CLINICAL MEDICINE, VETERINARY GYNAECOLOGY AND OBSTETRICS AND VETERINARY SURGERY AND RADIOLOGY

General and special clinical examination - General systemic state - etiology, clinical signs, pathogenesis, diagnosis and differential diagnosis, treatment and management of diseases of the digestive system, cardiovascular, respiratory, urinary, nervous, musculoskeletal, hemopoietic, Mammary gland, skin and sense organs – zoo and wild animal diseases-etiology, clinical signs, pathogenesis, diagnosis, prevention and control of metabolic, deficiency diseases – Ethics and jurisprudence and animal welfare in domestic and wild animals.

Female reproductive physiology, Puberty and sexual maturity, Aberrations of estrus and their clinical management, Problems in estrus detection and estrus detection aids, Follicular dynamics, Ovulation and its aberrations, Fertilization, Embryonic mortality, Anoestrus and repeat breeding syndrome, Diagnostic procedures in infertility investigation in female animals, Clinical uses of hormones and drugs in the management of infertility, Assisted reproductive techniques – Synchronization of estrus and ovulation, Multiple ovulation and embryo transfer technology in livestock and zoo animals, *In vitro* fertilization, Maternal recognition of pregnancy, Pregnancy diagnosis and factors affecting gestation length, Implantation, Placentation and its classification, Abortion, Accidents of gestation, Pre, peri and postpartum complications, Parturition and its stages, Dystocia and obstetrical interventions, Obstetrical anesthesia, Male sexual behaviour and libido, semen collection techniques, semen evaluation, semen extenders and cryopreservation, Artificial insemination techniques in farm and pet animals, Forms of male infertility, Breeding soundness evaluation of bull, Medical and surgical procedures for population control of their production.

Reproductive physiology; hormones and reproduction; Accidents of gestation, livestock fertility and infertility; artificial insemination; semen characteristics of different species of livestock and cryopreservation. Multiple ovulation and embryo transfer technology in livestock and zoo animals Reproductive disorders and their management.

General surgical principles – pre-and post-operative considerations, anesthesia, asepsis and anti-sepsis and sterilization; scope, history and development of veterinary radiology; Imaging pathology of different parts of body-surgical emergencies–Intensive care– Physiotherapy – Diathermy. Aural Hematoma in dogs-Small Animal GI tract surgical affections-Esophageal foreign Body – GDV – Intussusception – Foreign body syndrome – Megacolon – Ophthalmic affections in small animals – Amputation of tail-Large Animal GI tract affections – Choke - Rumenotomy - Abomasal Affections - Cecal Dilation and Torsion- Atresia Ani-Urogenital affections in small and large animals – Cystotomy – Urethrotomy - Perineal Urethrostomy -Tube Cystotomy. Orthopaedic Examination of Small Animals-Principles of Internal Fixation – Osteoarthritis and Hip Dysplasia-Patellar luxation in small animals. Conformation of Horses-Lameness examination in large animals-Hoof affections on horses and cattle-musculoskeletal diseases.

UNIT-X: LIVESTOCK PRODUCTS TECHNOLOGY

Layout and management of rural, urban, and modern abattoirs. HACCP concepts in abattoir management. Animal welfare and pre-slaughter care of meat animals. Significance of Meat Inspection in Wholesome Meat Production Procedures of antemortem and post-mortem examination of meat animals. Slaughtering and dressing of meat animals and birds. Importance of evaluation of meat animals and grading their carcasses. Utilization of abattoir by products, rendering, and treatment of condemned meat and carcasses. Management of effluent emanating from abattoir. The prospect of the meat industry in India. Structure and composition of muscle. Conversion of muscle to meat. Nutritive value of meat. Fraudulent substitution of meat. Preservation of meat and poultry; drying, salting, curing, smoking, chilling, freezing, canning, irradiation, and chemicals. Aging of meat. Modern processing technologies of meat and meat products. Concept of value addition – Importance of value addition in the meat industry. Physico-chemical and microbiological quality of meat and its products. Nutritive value of egg. FSSAI, Codex Alimentarius Commission rules, and regulations pertaining to meat.

Retrospect and prospects of milk industry in India - Layout of milk processing plant and its management - Composition and nutritive value of milk - factors affecting milk composition. Physico-chemical properties of milk. Collection, chilling, standardization, pasteurization, UHT treatment, homogenization, and bacto-fugation. Preparation of cream, butter, ghee, channa, paneer, khoa, ice cream, dahi, lassi, mozzarella cheese, and dairy by-products - Dried, dehydrated and fermented milk - Introduction to

functional milk products -Organic milk products. Common defects of milk products and their remedial measures –Microbiological deterioration of milk and milk products--Packaging, transportation, storage and distribution of milk and milk products-Good manufacturing practices and implementation of HACCP in milk plant-Food safety standards for milk and milk products-Cleaning and sanitation in milk plant - Dairy effluent management - Sampling of milk -Platform tests- Estimation of fat, solid not fat (SNF) and total solids - Cream separation –Detection of adulteration of milk-Determination of efficiency of pasteurization.

ANIMAL HUSBANDRY AND VETERINARY SCIENCE**(PG DEGREE STANDARD)****SUBJECT CODE:397****UNIT-I:GENERAL:**

Role livestock management - food security-Livestock Population Census in the nation and state -Policy note on Animal Husbandry, Government of Tamil Nadu-Current Livestock Development programs 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- Drugs and cosmetic Act1940, Good Manufacturing practices of veterinary biologicals, Basic knowledge on Institutional Bio safety Committee (IBSC), Committee for the control and supervision of experimentation on animals (CCSEA) and Animal Welfare Board (AWB).Contribution of Livestock sector to National and State Economy. WTO, TRIPS, IPR and their impact on livestock sector. Export and import of livestock and livestock products.

UNIT-II: ANIMAL BREEDING AND GENETICS, ANIMAL NUTRITION AND LIVESTOCK PRODUCTION MANAGEMENT**Animal Breeding and Genetics**

Important breeds of cattle, buffalo, sheep, goat, pig and poultry with special reference to economic characters- Principles of Genetics and Cytogenetics- Basis of Population Genetics – Hardy-Weinberg Law, Effects of selection, migration, mutation, genetic drift and in breeding on gene and genotype frequencies, Effective Population Size, Genetic parameters-Animal Breeding: Aids to selection, methods of selection and culling, Sire Evaluation & Breeding value estimation, Field Progeny Testing, Response to selection. Methods of breeding –In breeding and out breeding–Nucleus Breeding Systems, Synthetic breed formation, selection for combining ability in poultry - Molecular techniques and their applications in Animal Breeding including DNA chips and selection of High Genetic Merit breeding stock –Current live stock and poultry breeding policies and programmes in the state and country-Wild animal breeding in captivity. Pet animals and birds–breeds and breeding-Laboratory Animal Breeding-Conservation of Animal Genetic Resources.

Animal Nutrition

Nutritional terms and definitions-Proximate composition and fibre fractions 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, antinutritional factors-Storage and conservation of feeds and fodders–Formulation of rations and feeding of Livestock, Poultry, Laboratory and pet animals –Utilisation of unconventional

feeds, Industrial and animal by-products-Wildlife nutrition. Use of feed additives. Feed milling technology-Laws and regulations of feed manufacturing industry, Codex alimentarius, HACCP. Therapeutic diets for pet animals-Feeding of animals during disaster-Hydroponic fodder -nano nutrients in animal production.

Livestock Production Management

Common terms used in Animal Husbandry - Identification, Dentition and Age of animals – Watering livestock - Removal and disposal of manure and other animal waste –Disposal of carcasses and bio medical waste - Effect of environment on the health and productivity of livestock and measures to counteract it - Different systems of housing, enriched housing models, environmental controlled housing for livestock, Housing considerations for various classes of livestock with special reference to laboratory animals-Scientific techniques and regime of feeding and watering different categories of livestock-Traits of economic importance and their inter-relationships-labour management-clean milk production-management strategies different classes of livestock- Indices to assess their productive efficiency- Milk parlour systems- laws and practices governing dairy sector in India- Draught animal power- Climatology and livestock production- THSI index- effect of photo period on livestock productivity-Livestock and global warming-Behaviour and Animal Welfare-Significance of laboratory animal production and management-Management of companion animals and its management strategies-Economic importance of integrated farming system- Hatchery management-Different systems of poultry management - sexing and brooding of chicks - Common symptoms of diseases and control measures-Farm record maintenance.

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

Livestock Products Technology (Dairy Science)

Retrospect and prospects of milk industry in India - Layout of milk processing plant and its management - Composition and nutritive value of milk - factors affecting milk composition. Physico-chemical properties of milk. Collection, chilling, standardization, pasteurization, UHT treatment, homogenization, and bactofugation. Preparation of cream, butter, ghee, channa, paneer, khoa, ice cream, dahi, lassi, mozzarella cheese, and dairy by-products - Dried, dehydrated and fermented milk - Introduction to functional milk products –Organic milk products. Common defects of milk products and their remedial measures-Microbiological deterioration of milk and milk products--Packaging, transportation, storage and distribution of milk and milk products-Good manufacturing practices and implementation of HACCP in milk plant-Food safety standards for milk and milk products-Cleaning and sanitation in milk plant - Dairy effluent management -

Sampling of milk -Platform tests- Estimation of fat, solid not fat (SNF) and total solids - Cream separation -Detection of adulteration of milk- Determination of efficiency of pasteurization. Role of milk and milk products in human nutrition, Detection of adulterants in milk. Food safety Norms FSSAI.

Livestock Products Technology (Meat Science)

Layout and management of rural, urban, and modern abattoirs. HACCP concepts in abattoir management. Animal welfare and pre-slaughter care of meat animals. Significance of Meat Inspection in Wholesome Meat Production Procedures of antemortem and post-mortem examination of meat animals. Slaughtering and dressing of meat animals and birds. Importance of evaluation of meat animals and grading their carcasses. Utilization of abattoir by products, rendering, and treatment of condemned meat and carcasses. Management of effluent emanating from abattoir. The prospect of the meat industry in India. Structure and composition of muscle. Conversion of muscle to meat. Nutritive value of meat. Fraudulent substitution of meat. Preservation of meat and poultry; drying, salting, curing, smoking, chilling, freezing, canning, irradiation, and chemicals. Aging of meat. Modern processing technologies of meat and meat products. Concept of value addition - Importance of value addition in the meat industry. Physico-chemical and microbiological quality of meat and its products. Nutritive value of egg. FSSAI, Codex Alimentarius Commission rules, and regulations pertaining to meat.

UNIT-IV: ANIMAL HUSBANDRY EXTENSION AND ECONOMICS

Principles of extension education - Extension teaching methods, Audio visual aids -Characteristics of rural & urban societies. Diffusion of innovations, Innovation decision process, Adopter categories and factors influencing adoption of technologies, Panchayat Raj. Selection and training of leaders. Extension programme planning and evaluation. Principles and elements of animal husbandry extension management. Human resource management in the animal husbandry sector. ICT initiatives in Livestock Sector, State and Central Governmental Schemes - Role of animals in the economy of livestock owners. Statistics of animal and poultry - National and State wise. 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. Livestock entrepreneurship, avenues and job opportunities.

UNIT-V:VETERINARYANATOMY AND PHYSIOLOGY

Veterinary Anatomy

Gross study of bones of Ox and differences in Horse, Dog, Pig and Fowl, Palpable bony prominences of body of domestic animals, joints and muscles of skeleton of Ox. Gross study of heart and its conduction system, General plan of Pulmonary and systemic circulation, Palpable lymphnodes and arteries of the body of domestic animals. Surface veins for Venepuncture, Gross anatomy of Brain and Spinal cord, Gross study of organs of digestive, respiratory, urinary and reproductive system of Ox, Horse, Dog, Pig and Fowl, Systemic histology.

Veterinary Physiology

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. Endocrine control of Physiological system and application of hormones on Production-Renal System-Significance of Avian Excretory System-Physiological Significance of Avian Respiration-Stress Physiology-Mode of Stress management by body-Immune responses and Immune Physiology.

UNIT-VI:SURGERY & RADIOLOGY

General surgical principles - Asepsis and Antisepsis - sutures and suturing methods -Pre medication and Anaesthesia (Local Regional and General) in small and large animals-Anesthetic Monitoring-Anesthetic Emergencies and management-Anesthesia of wild and captive animals. Aural Hematoma in dogs - Small Animal GI tract surgical affections-Esophageal foreign Body-GDV-Intussusception-Foreign body syndrome-Megacolon-Ophthalmic affections in small animals-Amputation of tail-Large Animal GI tract affections - Choke-Rumenotomy - Abomasal Affections-Cecal Dilation and Torsion - Atresia Ani-Urogenital affections in small and large animals - Cystotomy-Urethrotomy-Pernieal Urethrostomy-Tube Cystotomy. Orthopaedic Examination of Small Animals-Principles of Internal Fixation-including pinning, plating and external skeletal fixators. Fracture and its complications-Osteoarthritis and Hip Dysplasia-Patellar luxation in small animals- Spinal cord affections and its surgical management. Conformation of Horses-Lameness examination in large animals-Hoof affections on horses and cattle-musculoskeletal diseases-Principles of fracture fixation in large animals. Common surgical affections and operative procedures (Wound, Fracture, and dislocation) - cosmetic surgical operations - Imaging techniques Principles of radiographic interpretation- Ultrasound diagnostic imaging - CT Scan and MRI techniques. Pre-operative and post-operative care of animals-Intensive care-Physiotherapy-Diathermy-Surgical Emergencies.

UNIT-VII:GYNAECOLOGY AND 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, Stage 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 program.

UNIT-VIII:VETERINARY MICROBIOLOGY AND PREVENTIVE MEDICINE

Veterinary Microbiology

General Microbiology-Microscopy-Bacterial growth, Nutrition, metabolism-
 Bacterial Genetics - Determinants and pathogenicity markers -
 bacteriophages – antimicrobial agents-resistance and susceptibility.
 Morphological structure of virus-classification of virus Replication of DNA &
 RNA viruses – Viral Interactions, pathogenesis, persistence, oncogenic virus-
 Immune response to viral infections. Systematic veterinary Bacteriology and
 Virology Bacterial and Viral diseases of veterinary importance - etiology,
 antigenic and structural components, pathogenesis, Diagnosis, and control-
 Prions, emerging & trans boundary diseases. Veterinary immunology -
 Poultry & livestock immune system - types of immunity-Organs and cells of
 Immune system - Antigens and its characteristics - Immunoglobulins -MHC-
 Hypersensitivity-Antigen-antibody Interaction-Immunological diseases-
 Veterinary Vaccine, Quality control recent advances in Vaccine delivery-
 Adjuvants – Vaccine failure. Veterinary Mycology, morphology, cultural
 characters - virulence factors – Antigenic components-pathogenesis-
 Diagnosis and control of fungal infection-Systematic study & animal
 mycoses.

Veterinary Preventive Medicine

Epidemiology-definitions, terms, triad, concept, scope, objectives, and
 uses. Monitoring and surveillance, epidemiological disciplines - investigations,
 methods, mode and route of disease transmission, observational studies,
 rates, ratios, occurrence of disease, properties of diagnostic tests, gradient of
 infection, pattern of diseases, survey, Data collection and ecosystem.
 Epidemiology, aetiology, pathogenesis, clinical manifestations, diagnosis,
 differential diagnosis, treatment, prevention and control of common bacterial,
 viral, fungal, rickettsial, protozoan and parasitic diseases (ecto and endo) of
 livestock, poultry, companion animals and wild life species, regional -
 emerging and re- emerging important diseases, notifiable diseases, Allergic

skin tests – Intradermal tests, and recent serology and molecular diagnostic techniques – disease outbreak investigations and vaccines-quality control-vaccination protocol for infectious diseases of livestock, poultry and pet animals – World Organisation for Animal Health

UNIT-IX:VETERINARY PATHOLOGY AND PARASITOLOGY

Veterinary Pathology

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, postmortem techniques, *vetro* – Legal implications - Collection and despatch of materials. Preservation of specimens.

Veterinary Parasitology

Classification of parasites - General life cycle, mode of transmission, pathogenesis, diagnosis and control of Trematodes, Cestodes, Nematodes, arthropods and Protozoa in animals and birds. Use and abuse of antiparasitic drug, anti-parasitic drug resistance, Parasites of zoonotic importance -Anti-parasitic vaccines.

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

Veterinary Clinical Medicine

General - Special and systemic clinical examinations - Clinical diagnostic techniques -Diseases of digestive system, cardiovascular, respiratory, urinary, nervous, musculoskeletal, hemopoietic, mammary gland ,skin and sense organs - Etiology, clinical signs, pathogenesis, diagnosis, treatment, prevention and control of metabolic diseases and deficiency diseases (Minerals and vitamins)- Diseases of toxicants-Fluid therapy including blood transfusion-emergency and critical care medicine-Ethics and jurisprudence in domestic and wild animals-Interpretation of laboratory results.

Veterinary Pharmacology and Toxicology

Drug action-Pharmacokinetics (absorption, distribution, biotransformation and excretion), Pharmacodynamics-Local and general anaesthetics- Antibiotics and chemotherapy-Toxicology, Ethno veterinary medicine. Pharmacy-Preparation of ointments liniments and injectable-Dispensing of pharmaceutical preparations. Pharmacokinetics (absorption, distribution, biotransformation, excretion) – Pharmacodynamics (structure and function of receptors, dose-response curve) – Anaesthetics (local and general), sedatives, analgesics-chemotherapy (general principles including

resistance, antibacterials, anthelmintics, antiprotozoal) – Toxicology (General principles of treatment of poisoning, antidotes, toxicity of pesticides, herbs, venoms, and toxins) – herbal drugs in veterinary practice–Pharmacy (calculations, prescription writing, drug approval process)

Paper-II
SYLLABUS FOR EXAMINATION (CBT Method)

PART - A

TAMIL ELIGIBILITY TEST (SSLC STANDARD)

கட்டாய தமிழ்மொழி தகுதித் தேர்விற்கான பாடத்திட்டம்

(கொள் குறி வினாவிற்கான தலைப்புகள்)

பத்தாம் வகுப்பு தரம்

1. பிரித்தெழுதுதல் / சேர்த்தெழுதுதல்.
2. எதிர்ச்சொல்லை எடுத்தெழுதுதல்.
3. பொருந்தாச் சொல்லைக் கண்டறிதல்.
4. பிழை திருத்தம் (i) சந்திப்பிழையை நீக்குதல் (ii) மரபுப் பிழைகள், வழுவூச் சொற்களை நீக்குதல் / பிறமொழிச் சொற்களை நீக்குதல்.
5. ஆங்கிலச் சொல்லுக்கு நேரான தமிழ்ச் சொல்லை அறிதல்.
6. ஒலி மற்றும் பொருள் வேறுபாடறிந்து சரியான பொருளையறிதல்.
7. ஒரு பொருள் தரும் பல சொற்கள்.
8. வேர்ச்சொல்லைத் தேர்வு செய்தல்.
9. வேர்ச்சொல்லைக் கொடுத்து / வினைமுற்று, வினையெச்சம், வினையாலணையும் பெயர், தொழிற்பெயரை, உருவாக்கல்.
10. அகர வரிசைப்படி சொற்களை சீர் செய்தல்.
11. சொற்களை ஒழுங்குப்படுத்தி சொற்றொடராக்குதல்.
12. இரு வினைகளின் பொருள் வேறுபாடு அறிதல்.
(எ.கா.) குவிந்து - குவித்து
13. விடைக்கேற்ற வினாவைத் தேர்ந்தெடுத்தல்.
14. எவ்வகை வாக்கியம் என க்கண்டெழுதுதல் - தன்வினை, பிறவினை, செய்வினை, செய்ப்பாட்டு வினை வாக்கியங்களைக் கண்டெழுதுதல்.
15. உவமையால் விளக்கப்பெறும் பொருத்தமான பொருளைத் தேர்ந்தெழுதுதல்
16. அலுவல்சார்ந்தசொற்கள் (கலைச்சொல்)
17. விடைவகைகள்.
18. பிறமொழிச் சொற்களுக்கு இணையான தமிழ்ச் சொற்களைக் கண்டறிதல்
(எ.கா.) கோல்டுபிஸ்கட் - தங்கக்கட்டி.
19. ஊர்ப் பெயர்களின் மருஉவை எழுதுக (எ.கா.) தஞ்சாவூர் - தஞ்சை
20. நிறுத்தற் குறிகளை அறிதல்.

21. பேச்சு வழக்கு, எழுத்து வழக்கு (வாரான் - வருகிறான்).
22. சொற்களை இணைத்து புதிய சொல் உருவாக்கல்.
23. பொருத்தமான காலம் அமைத்தல்
(இறந்தகாலம், நிகழ்காலம், எதிர்காலம்).
24. சரியான வினாச் சொல்லைத் தேர்ந்தெடு.
25. சரியான இணைப்புச் சொல்
(எனவே, ஏனெனில், ஆகையால், அதனால், அதுபோல).
26. அடைப்புக்குள் உள்ள சொல்லைத் தகுந்த இடத்தில் சேர்க்க.
27. இருபொருள் தருக.
28. குறில் - நெடில் மாற்றம், பொருள் வேறுபாடு.
29. கூற்று, காரணம் - சரியா? தவறா?
30. கலைச்சொற்களை அறிதல் :-
எ.கா. - Artificial Intelligence - செயற்கை நுண்ணறிவு
Super Computer - மீத்திறன் கணினி
31. பொருத்தமான பொருளைத் தெரிவு செய்தல்
32. சொற்களின் கூட்டுப் பெயர்கள் (எ.கா.) புல் - புற்கள்
33. சரியான தொடரைத் தேர்ந்தெடுத்தல்
34. பிழை திருத்துதல் (ஒரு-ஓர்)
35. சொல் - பொருள் - பொருத்துக
36. ஒருமை - பன்மை பிழை
37. பத்தியிலிருந்து வினாவிற்கான சரியான விடையைத் தேர்ந்தெடு.

Paper-II**PART - B****GENERAL STUDIES (DEGREE STANDARD)****CODE NO.003****UNIT-I: GENERAL SCIENCE**

- (i) Scientific Knowledge and Scientific Temper - Power of Reasoning - Rote Learning vs Conceptual Learning - Science as a tool to understand the past, present and future.
- (ii) Nature of Universe - General Scientific Laws – Mechanics - Properties of Matter, Force, Motion and Energy - Everyday application of the Basic Principles of Mechanics, Electricity and Magnetism, Light, Sound, Heat, Nuclear Physics, Laser, Electronics and Communications.
- (iii) Elements and Compounds, Acids, Bases, Salts, Petroleum Products, Fertilisers, Pesticides.
- (iv) Main concepts of Life Science, Classification of Living Organisms, Evolution, Genetics, Physiology, Nutrition, Health and Hygiene, Human Diseases.
- (v) Environment and Ecology.

UNIT-II: CURRENT EVENTS

- (i) History - Latest diary of events - National symbols - Profile of States - Eminent personalities and places in news – Sports-Books and authors.
- (ii) Polity – Political parties and political system in India-Public awareness and General administration- Welfare oriented Government schemes and their utility, Problems in Public Delivery Systems.
- (iii) Geography-Geographical landmarks.
- (iv) Economics-Current socio-economic issues.
- (v) Science-Latest inventions in Science and Technology.
- (vi) Prominent Personalities in various spheres – Arts, Science, Literature and Philosophy.

UNIT-III: GEOGRAPHY OF INDIA

- (i) Location – Physical features - Monsoon, Rainfall, Weather and Climate - Water Resources - Rivers in India - Soil, Minerals and Natural Resources - Forest and Wildlife - Agricultural pattern.
- (ii) Transport -Communication.
- (iii) Social Geography – Population density and distribution- Racial, Linguistic Groups and Major Tribes.
- (iv) Natural calamity – Disaster Management – Environmental pollution: Reasons and preventive measures – Climate change – Green energy.

UNIT-IV: HISTORY AND CULTURE OF INDIA

- (i) Indus Valley Civilization - Guptas, Delhi Sultans, Mughals and Marathas - Age of Vijayanagaram and Bahmani Kingdoms - South Indian History.
- (ii) Change and Continuity in the Socio - Cultural History of India.
- (iii) Characteristics of Indian Culture, Unity in Diversity –Race, Language, Custom.
- (iv) India as a Secular State, Social Harmony.

UNIT-V: INDIAN POLITY

- (i) Constitution of India - Preamble to the Constitution- Salient features of the Constitution- Union, State and Union Territory.
- (ii) Citizenship, Fundamental Rights, Fundamental Duties, Directive Principles of State Policy.
- (iii) Union Executive, Union Legislature – State Executive, State Legislature – Local Governments, Panchayat Raj.
- (iv) Spirit of Federalism: Centre-State Relationships.
- (v) Election - Judiciary in India – Rule of Law.
- (vi) Corruption in Public Life – Anti-corruption measures – Lokpal and Lok Ayukta - Right to Information- Empowerment of Women-Consumer Protection Forums, Human Rights Charter.

UNIT-VI: INDIAN ECONOMY

- (i) Nature of Indian Economy – Five year plan models - an assessment – Planning Commission and Niti Ayog.
- (ii) Sources of revenue – Reserve Bank of India – Fiscal Policy and Monetary Policy - Finance Commission – Resource sharing between Union and State Governments - Goods and Services Tax.
- (iii) Structure of Indian Economy and Employment Generation, Land Reforms and Agriculture - Application of Science and Technology in Agriculture - Industrial growth - Rural Welfare Oriented Programmes – Social Problems – Population, Education, Health, Employment, Poverty.

UNIT-VII: INDIAN NATIONAL MOVEMENT

- (i) National Renaissance –Early uprising against British rule - Indian National Congress - Emergence of leaders –B.R.Ambedkar, Bhagat Singh, Bharathiar, V.O. Chidambaranar Jawaharlal Nehru, Kamarajar, Mahatma Gandhi, Maulana Abul Kalam Azad, Thanthai Periyar, Rajaji, Subash Chandra Bose, Rabindranath Tagore and others.
- (ii) Different modes of Agitation: Growth of Satyagraha and Militant Movements.
- (iii) Communalism and Partition.

UNIT-VIII: History, Culture, Heritage and Socio-Political Movements in Tamil Nadu

- (i) History of Tamil Society, related Archaeological discoveries, Tamil Literature from Sangam Age till contemporary times.
- (ii) Thirukkural :
 - (a) Significance as a Secular Literature
 - (b) Relevance to Everyday Life
 - (c) Impact of Thirukkural on Humanity
 - (d) Thirukkural and Universal Values - Equality, Humanism, etc
 - (e) Relevance to Socio-Politico-Economic affairs
 - (f) Philosophical content in Thirukkural
- (iii) Role of Tamil Nadu in freedom struggle - Early agitations against British Rule - Role of women in freedom struggle.
- (iv) Evolution of 19th and 20th Century Socio - Political Movements in Tamil Nadu - Justice Party, Growth of Rationalism - Self Respect Movement, Dravidian Movement and Principles underlying both these Movements, Contributions of Thanthai Periyar and Perarignar Anna.

UNIT-IX: Development Administration in Tamil Nadu

- (i) Human Development Indicators in Tamil Nadu and a comparative assessment across the Country – Impact of Social Reform Movements in the Socio - Economic Development of Tamil Nadu.
- (ii) Political parties and Welfare schemes for various sections of people – Rationale behind Reservation Policy and access to Social Resources - Economic trends in Tamil Nadu – Role and impact of social welfare schemes in the Socio-Economic Development of Tamil Nadu.
- (iii) Social Justice and Social Harmony as the Cornerstones of Socio-Economic Development.
- (iv) Education and Health Systems in Tamil Nadu.
- (v) Geography of Tamil Nadu and its impact on Economic growth.
- (vi) Achievements of Tamil Nadu in various fields.
- (vii) e-Governance in Tamil Nadu.

UNIT-X: APTITUDE AND MENTAL ABILITY

- (i) Simplification – Percentage - Highest Common Factor (HCF) - Lowest Common Multiple (LCM).
- (ii) Ratio and Proportion.
- (iii) Simple interest - Compound interest - Area - Volume - Time and Work.
- (iv) Logical Reasoning -Puzzles-Dice - Visual Reasoning - Alpha numeric Reasoning – Number Series.