

APPENDIX-I

SCHEME & SYLLABUS OF EXAMINATION FOR THE PURPOSE OF FILLING UP OF THE POST OF VETERINARY OFFICER IN THE SIKKIM STATE ANIMAL HUSBANDRY & VETERINARY SERVICE.

The examination will consist of two (2) papers, namely :-

PAPERS	SUBJECT	FULL MARKS	TIME ALLOWED
PAPER-I	GENERAL ENGLISH & GENERAL KNOWLEDGE (MCQ Mode)	100	1.00 hour.
PAPER-II	Animal Husbandry & Veterinary Science (MCQ & Conventional).	300	3.00 hours.

**VIVA-VOCE / PERSONALITY: 50 MARKS**

**PAPER-I: GENERAL ENGLISH & GENERAL KNOWLEDGE**

Candidates will be required to answer questions designed to test their understanding of English and workman like use of words. The pattern of questions would be broadly as follows, namely:-

1. Comprehensive of given passage
2. Usages and Vocabulary

General Knowledge: Knowledge of current events of local, national and international importance and such matter of everyday observation and experience in their scientific aspects as may be expected of any educated person who has not made a special study of any scientific subject. The paper will also include questions of Modern history (from 1857 onwards) of India, Indian Culture, Indian polity, Indian economy and Geography of India of such nature as candidates should be able to answer without special study. The questions will be of objective type.

**PAPER-II:**

The question will be MCQ AND CONVENTIONAL TYPE and will cover areas of knowledge of the following subject and topics:-

**SYLLABUS FOR SPSC EXAM FOR DIRECT RECRUITMENT FOR THE POST OF VETERINARY OFFICER**

**VETERINARY CLINICAL MEDICINE-I  
(GENERAL & SYSTEMIC)**

History and scope of Veterinary Medicine, Concept of animal diseases. Concepts of diagnosis, differential diagnosis and prognosis. General systemic states, hyperthermia, hypothermia, fever, septicemia, toxemia, shock and dehydration. Aetiology, clinical manifestations, diagnosis, differential diagnosis, treatment prevention and control of the following diseases of cattle, sheep/goat, equine, pig and pet animals. Diseases of digestive system with special reference to rumen dysfunction and diseases of stomach in non-ruminants. Affections of peritoneum, liver and pancreas. Diseases of respiratory and cardiovascular systems including blood and blood forming organs. Diseases of urogenital system & lymphatic system. Emergency medicine and critical care.

**VETERINARY PREVENTIVE MEDICINE-I  
(BACTERIAL, FUNGAL & RICKETTSIAL DISEASES)**

Clinical manifestation, diagnosis, prevention and control of infectious diseases, namely mastitis, haemorrhagic septicaemia, brucellosis, tuberculosis, black quarter, tetanus, listeriosis, leptospirosis, actinobacillosis, enterotoxaemia, ulcerative lymphangitis, colibacillosis, fowl typhoid, pullorum disease, fowl cholera, avian mycoplasmosis, salmonellosis, swine erysipelas. Other important bacterial diseases of regional importance (e.g. contagious caprine pleuropneumonia, contagious bovine pleuropneumonia etc.). Bacterial diseases of bio terrorism Instance-anthrax, botulism etc. Chlamydiosis, anaplasmosis, aspergillosis(brooders pneumonia), candidiasis, etc.

**VETERINARY CLINICAL MEDICINE -II  
(METABOLIC & DEFICIENCY DISEASES)**

Aetiology, clinical manifestations, diagnosis, differential diagnosis, treatment prevention and control of metabolic disorders/ production diseases. Milk fever, acute parturient hypocalcaemia in cattle, goats, sows and bitches, lactation tetany in mares, downer cow syndrome, ketosis, hypomagnesaemia in cattle and buffalo, hypothyroidism and diabetes in dogs. Diagnosis and management of diseases caused by deficiency of iron, copper, cobalt zinc, manganese, selenium, calcium, phosphorus, magnesium, vitamin A, D, E, B. complex, K and C in domestic animals and poultry. Nutritional haemoglobinuria. Diseases of skin, musculoskeletal system, nervous system and sense organs of domestic animals. Management of common clinical poisonings. Role of alternative/integrated/ethno- veterinary medicine in animal disease management.

**VETERINARY PREVENTIVE MEDICINE-II  
(VIRAL & PARASITIC DISEASES)**

Clinical manifestation, diagnosis, prevention and control of infectious diseases, namely foot and mouth disease, rinderpest, lumpy skin disease, bovine viral diarrhoea, malignant catarrhal fever, Infectious bovine rhinotracheitis, ephemeral fever, blue tongue, sheep and goat pox, PPR, classical swine fever. Important exotic diseases for differential diagnosis - African swine fever, swine vesicular disease, Porcine Reproductive and Respiratory Syndrome (PRRS). Rabies, canine distemper, Infectious canine hepatitis, canine parvoviral disease. Highly pathogenic avian influenza, Newcastle (Ranikhet) disease, Marek's disease. avian leucosis, Infectious bronchitis, fowl pox, infectious bursal disease. Other emerging and exotic viral diseases of global importance. Amphistomosis, fascioliosis, {Gastrointestinal nematodiasis, schistosomiasis, echinococcosis, tapeworm infestations (cysticercosis), verminous bronchitis, coenurosis, trichomonosis, blood protozoan infections (trypanosomosis. theileriosis. Babesiosis, ehrlichiosis etc.), coccidiosis.

### VETERINARY GYNAECOLOGY

Clinical evaluation and abnormalities of reproductive tracts in domestic animals. Delayed puberty and sexual maturity. Estrus detection. Aberrations of estrus and estrus cycle. Seasonal breeding. Pregnancy diagnosis-different methods- in different species. Superfoetation and Superfecundation. Fertility, Infertility & sterility- Anatomical, hereditary, nutritional, managerial, hormonal and infectious causes. Anoestrus, ovulatory defects and cystic ovarian degeneration. Repeat breeding: Fertilization failure, early embryonic mortality. Specific & non-specific infections affecting genital organs endometritis, cervicitis, vaginitis. Fertility parameters. Sexual health control and reproductive health management. Clinical use of hormones in female infertility. Breeding management mismating, psuedopregnancy, transmissible venereal tumor-(TVT) in bitches, Induction of estrus, Synchronization of estrus, Follicular Dynamics, Ovulation, Superovulation, and Embryo Transfer Technology.

### VETERINARY OBSTETRICS

Types and functions of placenta in different species. Diseases & accidents during Gestation, Abortion in domestic animals-diagnosis & control. Fetal "mummification, maceration, pyometra and mucometra. Prolonged gestation. Teratology. Premature birth. Uterine torsion. Cervico-vaginal prolapse. Termination of pregnancy. Parturition. Puerperium and involution of uterus in domestic animals. Care and management of dam and newborn.

Dystocia- Types of dystocia - maternal & fetal- approach, diagnosis and treatment Epidural & other anesthesia in obstetrical practice. Obstetrical operations- forced extractions, fetotomy and cesarean section. Injuries and diseases in relation to parturition. Postpartum diseases and complications: uterine prolapse, retention of fetal membranes, metritis, postpartum paraplegia. Animal birth control- ovariohysterectomy and nonsurgical interventions in companion animals.

### GENERAL VETERINARY SURGERY, ANESTHESIOLOGY AND DIAGNOSTIC IMAGING

#### General Surgery

Introduction, history, classification, surgical terminology and development of veterinary surgery. Asepsis-antisepsis, their application in veterinary surgery. Surgical risk and judgment. Management of shock, haemorrhage. Principles of fluid therapy in surgical patients. Differential diagnosis and surgical treatment of abscess, tumors, cyst haematoma, necrosis, gangrene, bum. Wound: classification, symptoms, diagnosis and treatment; complications, their treatment and prevention. Different bandaging methods.

#### Anaesthesiology

Preanaesthetic considerations and preanaesthetics. Anaesthesia, local analgesia/anaesthesia, Premedication, General anaesthesia, anaesthetic agents (like barbiturates, dissociative agents). Inhalation anaesthesia and agents, maintenance and monitoring of general anaesthesia. Anaesthetic emergencies and their management. Post operative pain management General principles of chemical restraint of wild / zoo animals and anaesthesia of lab animals.

#### Diagnostic Imaging.

Production and properties of X-rays. Principles of viewing and interpreting X-ray films, classification of radiographic lesions. Contrast radiography: classification, materials, uses, indications and contra indications.

Biological effects of radiation, radiation hazards and their prevention by adoption of safety measures.

Principles of ultrasonography and its applications in veterinary practice.

### REGIONAL VETERINARY SURGERY

#### Head and Neck

Affections of the lips and cheek and their treatment. Affections of the tongue and their treatment. Guttural pouch, empyema, tympanitis. Sinusitis, pus in the sinus, Affections of the horn and their treatment (avulsion of the horn, fracture of the horn, horn cancer and fissure in horn). Debudding and amputation of the horns. Affections of salivary glands and their treatment (Trauma, sialoliths, salivary cysts, salivary fistula). Affections of the upper and lower jaw and treatment.

Affections of the ear and their treatment (haematoma and chronic otorrhoea).

Eye: Clinical examination of the eye. Surgical affections of the eye: Entropion, ectropion, tumor of eye, Third eye lid prolapse. Conjunctiva: Conjunctivitis, affections of the eye: hydrophthalmia, proptosis, glaucoma, tumors of eye, panophthalmia. Worm in the eye.

Affections of esophagus: choke, esophageal stenosis, dilation and diverticulum. Tracheal injuries and tracheal collapse.

Thorax and Abdomen- Fracture of rib. Perforated wounds, sternal fistula. Hernia: classification, etiology, diagnosis and treatment (umbilical, ventral, inguinal, perineal, diaphragmatic). Surgical affections of the stomach in dogs {cardia, pyloric stenosis, torsion, GDV}. Surgical affections, diagnosis and treatment of stomach in ruminants (ruminal impaction, traumatic reticulitis, diaphragmatic hernia, abomasal displacement, omasal impaction). Surgical affections of intestines: intestinal obstruction, intussusception, strangulation (volvulus) in large and small animals. Urolithiasis and urethral stenosis their sequelae and surgical treatment. Surgical affections of penis and sheath, affections of testicle, scrotum. Surgical affections of udder and teat.

### VETERINARY ORTHOPAEDICS AND LAMENESS

Lameness, definition, classification and diagnosis. Radial paralysis, carpalis, bent knee, and knock-knee. Hygroma of knee, open knee. Fracture of carpal bone, fracture of accessory carpal, contraction of digital flexors. Splints, sore shin, quittor, Navicular disease. Laminitis, sand crack, seedy toe, fractures of third phalanx, pedal osteitis, and sole penetration. Monday morning sickness, sub-luxation of sacroiliac joint. Upward luxation-fixation of patella. Bovine lameness: contusion of sole, ulceration of sole, septic laminitis. avulsion of hoof and sub-luxation of patella. Specific joint disease in dogs and their treatment. (Intervertebral disc protrusion, spondylosis) elbow and hip dysplasia, Rupture of cruciate ligament. Fracture and dislocation. Classification and general principles of fracture repair. Application of external and internal immobilization for different bone fractures in small and large animals. Complications of fracture healing. Affections of tendon, tendon sheath, bursa and ligaments. Principles of physiotherapy, classification, scope and limitations.

### ANIMAL WELFARE, ETHICS AND JURISPRUDENCE

Definition of animal welfare and ethics. Human and animal welfare in relation to ecosystem and environmental factors. Role of veterinarians in animal welfare. Animal welfare organisations, Animal Welfare Board of India - their role, functions and current status. Rules, regulations, laws on animal welfare. Prevention of Cruelty to Animals (PCA) Act, 1960 {59 of 1960}. Role and function of Committee for the purpose of Controlling and Supervising Experiments in Animals (CPCSEA). Animal Birth Control Rules, 2023, Protection of wild life in nature and captivity. Protection and welfare of performing animals. Welfare of animals during transportation. Animal welfare in commercial livestock farming practices. Pet and companion animal welfare. Animal welfare during natural calamities and disaster management, Legal duties of veterinarians, Forensic and State Medicine laws. Common offences against animals and laws related to these offences. Examination of living and dead animals in

criminal cases. Cruelty to the animals and bestiality. Legal aspects of: Examination of animals for soundness, examination of Injuries and post-mortem examination. Collection and despatch of materials for chemical examination, detection of frauds-doping, alternation of description, bishoping etc. Cattle slaughter and evidence procedure in courts. State and Central Acts relating to animals. Laws relating to poisons and adulteration of drugs.

PET/ ANIMAL BREEDING, MANAGEMENT, NUTRITION AND HEALTH CARE

Breeds of dogs- international pedigree breeds and those commonly seen in India. Pedigree sheet and major breed traits. Detection of oestrus and Breeding of dogs. Selecting a breed to keep, selection of a pup. Feeding of dogs- nutritional requirements of important breeds and different age groups. Management of dogs-kennels, care of pups and pregnant bitch. Dog shows.

Common diseases affecting dogs (bacterial, viral, parasitic, fungal, nutritional etc.) - their clinical manifestations, diagnosis, treatment and control. Vaccination/ deworming schedules. Common surgical interventions in dogs- docking, ear cropping, nail cutting, Ovario-hysterectomy. Common anaesthetics and anaesthesia in dogs.

Common breeds of cats, their habits, feeding, breeding and management. Common diseases of cats-their diagnosis, treatment and control. Common surgical interventions in cat. Common pet birds seen in India.

LIVESTOCK PRODUCTION MANAGEMENT-I (GENERAL PRINCIPLES AND RUMINANTS)

Common animal husbandry terms. Body conformation and identification. Dentition and ageing of animals. Common farm management practices including disinfection, isolation, quarantine and disposal of carcass. Introduction to methods of drug administration. Common vices of animals, their prevention and care. Organic livestock production.

General principles affecting the design and construction of building for housing for various livestock species. Selection of site. Arrangements of the building with special reference to hilly conditions. Utilisation of local materials. General management and feeding practices of calves, heifers, pregnant, lactating and dry animals in bulls and working animals. Housing systems, layout and design of different biddings for dairy animals inducing backyard dairy and mixed farms. Routine dairy farm operations and labour management Methods of milking and precautions. Factors affecting quality and quantity of milk production.

Demography of sheep, pig and goat population and their role in economy. Breeds and breed descriptors. General management and feeding practices during different stages of growth, development and production (milk, meat and wool) in small and large holdings. Breeding schedule and management of ram, sow and buck. Weaning and fattening of lambs, piglets and kids. Housing systems, layout and design of different buildings for small ruminants and pigs.

FODDER PRODUCTION AND GRASSLAND MANAGEMENT

Importance of grasslands and fodders in-livestock production. Agronomical practices for production of leguminous and non-leguminous fodders in different seasons. Soil and water conservation and irrigation drainage for fodder production. Farm, power and agroenergy. Farm machinery and equipment Harvesting and post harvest techniques "for fodder preservation. Storage of feeds and fodders. Scarcity fodders. Feed and fodder management for individual animals. Fodder production for small units through inter cropping or back yard cultivation.

### AVIAN PRODUCTION MANAGEMENT

Indian Poultry industry-brief outline of the different segments-poultry statistics. Classification of poultry, common breeds of poultry including duck, quail, turkey & guinea fowl and their descriptions. Description of indigenous fowls. Reproduction in fowl, male and female reproduction systems, formation of eggs, structure of eggs. Important economic traits of poultry, egg production, egg weight egg quality, growth, feed consumption and feed efficiency, fertility and hatchability, plumage characteristics and comb types.. Low input technology; backyard and semi intensive unit of various sizes; their description, management and economic achievements. Brooding and rearing practices used for chicken. Hatching and feeding norms for different species of poultry.

### PRINCIPLES OF ANIMAL GENETICS AND POPULATION GENETICS

History of Genetics. Chromosome numbers and types in livestock and poultry. Mitosis, Meiosis and gametogenesis. Overview of Mendelian principles; Modified Mendelian inheritance: gene interaction; multiple alleles; lethals; sex-linked, sex limited and sex influenced traits; linkage and crossing over, Mutation, Chromosomal aberrations; Cytogenetics, Extra-chromosomal inheritance. Gene concept -classical and molecular.

Quantitative genetics: Nature and properties; Values and means. Components of phenotypic and genotypic variance; Concept of genotype and environment interaction, Resemblance between relatives; Heritability, repeatability, genetic and phenotypic correlations.

### PRINCIPLES OF ANIMAL NUTRITION AND FEED TECHNOLOGY

Importance of nutrients in animal production and health. Composition of animal body and plants. Nutritional terms and their definitions. Importance of minerals (major and trace elements) and vitamins in health and production, their requirements and supplementation in feed. Common feeds and fodders, their classification, availability and importance for livestock and poultry production. Protein evaluation of feeds -Measures of protein quality in ruminants and non-ruminants, biological value of protein, protein efficiency ratio, protein equivalent, digestible crude protein. Feed additives in the rations of livestock and poultry; Antibiotics and hormonal compounds and other growth stimulants, and their uses.

### APPLIED NUTRITION-I (RUMINANTS)

Importance of scientific feeding. Feeding experiments. Digestion and metabolism trial. Norms adopted in conducting digestion trial. Measurement of digestibility. Factors affecting digestibility of a feed. Feeding standards, their uses and significance, merit and demerits of various feeding standards with reference to ruminants. Nutrient requirements of livestock energy and protein requirement for maintenance and production. Methods adopted for arriving at energy and protein requirements for maintenance and production in terms of growth, reproduction, milk, meat, wool and work. Balanced ration and its characteristics. General principles of computation of rations. Formulation of rations and feeding of dairy cattle and buffaloes during different phases of growth, development and production (neonate, young, mature, pregnant, lactating and dry animals; breeding bull and working animals). Formulation of ration and feeding of sheep, pig and goat during different phases of growth, development and production (milk, meat and wool). Use of NPN compound for ruminants.

### VETERINARY EPIDEMIOLOGY AND ZOOSES

Definitions and aims of epidemiology. Factors influencing occurrence of livestock diseases and production. Ecological basis and natural history of diseases. Sources, Storage, retrieval and representation of disease information/data. Epidemiological hypothesis. Epidemiological methods: descriptive, analytical (observational), experimental, theoretical (modelling), serological and molecular. Survey of animal diseases. Surveillance and monitoring of

livestock diseases. Animal disease forecasting. Strategies of disease management: prevention, control and eradication. Role of OIE and laws on international trade on animals and animal products.

Definition, history and socio-economic impact of zoonotic diseases. Classification of zoonoses and approaches to their management. New, emerging, re-emerging and occupational zoonoses. . Role of domestic, wild, pet and laboratory animals and birds in transmission of zoonoses. Zoonotic pathogens as agents of bio-terrorism. Reservoirs, clinical manifestations in animals and humans, and the management of the following zoonoses: rabies, Japanese encephalitis, influenza, anthrax, brucellosis, tuberculosis, leptospirosis, listeriosis, plague, Nipah virus, Creman- Congo fever, rickettsiosis, chlamydiosis and dermatophytosis. Food borne zoonoses: salmonellosis, staphylococcosis, clostridial food poisoning, campylobacteriosis, toxoplasmosis.

