GROUP-35

Veterinary Lab Technician Level- Matric+ Diploma in DVLT

1) General awareness, Reasoning, Mathematics, Science, History including Haryana related history, current affairs, literature, Geography, Civics, Environment, Culture etc.- **(Weightage 20%)**

2) Computer terminology, Fundamentals, word software, excel software, Power point, internet, web browsing, Communication, emails, downloading and uploading data on websites etc**. -**

(Weightage 10%)

3) Subject related syllabus- **(Weightage 70%)**

Techniques in Anatomy

Introduction to gross anatomy of different organs of musculoskeletal, cardiovascular, respiratory, digestive, urinary, genital, endocrine and central nervous system of animals.

Management and Diagnostic sampling of Laboratory Animals

Biology of different laboratory animals; feeding, watering and management of laboratory animals. Animal behaviour, capture and restraint of laboratory animals. Collection of blood, urine, faeces and other body fluid samples in different laboratory animals. Anaesthesia and Euthanasia of laboratory animals.

Techniques in Biochemistry and Biotechnology

Introduction to laboratory, glassware, plastic ware and instruments. Minimum requirements to start a laboratory. Hazards in clinical biochemical laboratory. Preparation and standardization of acids and alkalis, concept of pH – preparation of buffer, colorimetric and electrometric determination of pH. Anti-coagulants and preservatives.

Sample collection: blood, urine, other sample types, dangerous samples, sampling errors etc. Sample processing and preservation. The use of biochemical tests, specialized tests, automation and computerization. Colorimetry and spectrophotometry. Centrifuges and centrifugation. Qualitative and quantitative tests and identification of carbohydrates, lipids and proteins. Estimation of blood, urine, semen, saliva, milk and tissue biochemical constituents. Biotechnological/molecular biology techniques, ELISA, PCR etc. Nucleic acid and antibody-based assays, isolation of RNA and DNA. Organ function tests. Concept of bar coding. Data entry and presentation of results. Reference ranges.

Laboratory Management and Professional Ethics

Laboratory equipment and gadgets. Laboratory practices, glass and plastic wares. Various signs and labels, and their uses. Disposal of clinical waste. Laws and ethics governing clinical laboratories.

Techniques in Clinical Parasitology

Parasitology overview, Nematode parasites, Trematode parasites, Cestode parasites, Parasitology overview, Nematode parasites, Trematode parasites, Cestode parasites.

Techniques in Surgery and Diagnostic Imaging

Introduction, general surgical principles, suture materials used in veterinary practice. Sterilization (asepsis-antisepsis, their application in veterinary surgery); disinfection; de-germination. Definition of common terms in relation to anaesthesia. Injectable and inhalation anaesthetics. Preparation of the patient; and positioning. Local anaesthetics, Introduction to diagnostic imaging, production of X-rays, X-ray equipment, exposure factors, image formation, radiographic film quality, radiation safety, contrast radiography, diagnostic ultrasonography, nuclear medicine, computed tomography, magnetic resonance imaging.

Restraint and Handling of Domestic Animals and Diagnostic Sampling

Indications for restraint, animal behaviour, capture and restraint of horse, cattle, buffalo, camel, sheep, goat, pig, dog, cat and birds. Collection of blood, urine, faeces and other body fluid samples in different animal species.

Occupational Hazards and Environmental Management

Basics of ecology and eco system, preservation of species. Biodiversity, nature and animal conservation. Forest conservation, water resource management. Soil, water air and noise pollution. Biosafety, climate change and global warming. Global warming and population. The Ozone Layer and Climate Change, Energy Security. Stress on the environment, society and resources. Natural Disasters. Emerging diseases and their management strategies. Solid waste management. Legislation to product environment. Role of non-conventional source of energy in environmental protection.

Techniques in Histology

Introduction to cell, tissue, epithelium and glands. Basic histological arrangement of tunics of different visceral organs. Different types of fixatives for histology.

Techniques in Pharmacology

Introduction and classification of drugs and poisons. Metrology, Pharmaceutical calculations and calculation of doses, route of drug administration, drug, and dosage forms. Safe storage of different class of drugs, pharmaceutical processes. Physicochemical properties of commonly used drugs, drug hazards and safety.

Techniques in Physiology

Collection of blood. Preservation of defibrinated blood. Enumeration of erythrocytes and leukocytes. Leukocytic differential count, Platelet count. Estimation of haemoglobin, haematocrit, erythrocyte sedimentation rate, coagulation time, bleeding time, erythrocyte fragility, blood grouping. Counting of rumen flora motility, estimation of volatile fatty acids and ammonia in rumen fluid. Bacterial and protozoal count in rumen fluid. Physical and chemical analysis of urine and its interpretation in health and disease condition. Estimation of acidity in urine. Demonstration of various kidney function tests, creatinine clearance rate, urea clearance rate, glucose tolerance test. Sperm motility, sperm concentration, live and dead sperm count. Demonstration of estimation of progesterone and estro-gen by radio immune assay.

Techniques in Clinical Microbiology

Introduction to microbiology. Collection transport, storage/preservation and processing of samples for microbiological work. Specimen collection from living and dead animals for important microbial diseases of livestock and poultry. Isolation and identification of bacteria fungi and handling of bacterial and fungal cultures. Cell culture and embryonated egg inoculation for virus isolation and other virological work. Handling of virus cultures, Introduction to immune system, immunity, antigen and antibody. Preparation of bio-reagents for immunological work. Serological immunological and molecular test for microbiological diseases. OIE prescribed tests for infectious disease. Methods of bacterial and viral vaccine production, formulation, and quality control testing of vaccines.

Collection Processing and Analysis of Clinical Samples

Hands on practice for collection of blood, urine, faeces, tissues and other body fluid samples in different animal species. Preservation and dispatch of specimen for laboratory diagnosis. Haematological examination; biochemical examination of blood, plasma/serum, urine and other body fluids. Blood and faecal examination for parasites, microbiological examination of milk, meat, water, air etc. All preparations of aseptic surgery. Analysis of feed for toxic compounds etc.

Zoonosis, Public Health and Epidemiology

Epidemiological terms, representation of data, collection, preservation and dispatch of specimens for laboratory examination. Animal associated injuries, bacterial zoonosis, mycotic zoonosis, parasitic zoonosis, viral diseases. Importance of safe water, hygienic milk and meat products, bacteriological examination of milk, meat, air and sewage. Cleaning, sterilization and disinfection in food establishments.

Techniques in Feed Analysis

Different standard solutions used in nutritional evaluation. Different systems of feed evaluation, Proximate system of analysis and its limitations. Sampling Procedures.

Basic Information Technology

Introduction, evolution of computers, components of a computer, hardware vs software, system vs applications software, bits and bytes, input and output devices, RAM/ROM, secondary storage devices. Microsoft windows, windows desktop, working with windows, exploring the control panel, common accessory, applications, windows explorer, MS office, internet and its applications like: email and browsing, various browsers like WWW (WORLD WIDE WEB) ; hyperlinks; http(HYPER TEXT TRANSFER PROTOCOL); ftp (FILE TRANSFER PROTOCOL) basics of networking—LAN, WAN

Dairy and Meat Technology

Sampling of milk, estimation of fat, solid not fat and total solids, COB, alcohol, acidity, pH, specific gravity, sediments and dye tests, detection of adulteration and preservatives in milk. Microbiological examination of milk and its products, pasteurization of milk, preparation of milk products. Methods of humane slaughter of animals, preparation of abattoir by-products. Wool sampling and its evaluation. Preservation and evaluation of meat and its products, preparation of meat and poultry products. Candling, evaluation and preservation of shelled eggs and its products. Slaughtering techniques used for various types of birds. Slaughtering and evisceration of different kinds of birds. Estimation of dressing percentage and yield. Grading of dressed chicken / poultry. Microbiological sampling of meat, poultry products and eggs.

Techniques in Clinical Pathology

Introduction and Importance of clinical pathology. Introduction to fundamentals of blood and urine analysis. Introduction: Objectives, definition, requirements, steps in post-mortem technique. Technique of post-mortem examination for various species of animals including poultry. Post-mortem changes and post-mortem lesions of important diseases. Writing of postmortem report. Collection, preservation and dispatch of specimens for laboratory diagnosis. Post mortem examination of Vetra-legal cases. Brief introduction of processing of tissues for histopathological examination: Grossing, paraffin wax embedding, blocking, cutting and staining.

Important Note: The Weightage as mentioned against the syllabus is tentative & may vary.