

OPSC - Veterinary Assistant Surgeon- Written Exam Paper II Syllabus**PAPER - II (ANIMAL SCIENCE)**

1. Veterinary Physiology 2. Veterinary Biochemistry 3. Veterinary and Animal Husbandry Extension 4. Animal Nutrition 5. Livestock products Technology. 6. Livestock production and Management 7. Animal Genetics and Breeding.

1. Veterinary Physiology

Properties of blood as body fluid, Anaemia, Immunogenic functions of leucocytes, Blood coagulation, Cardiac cycle, Regulation of cardiac output, ECG and its interpretations, Haemodynamics and Circulatory shock, Role of kidney in body homeostasis, Neuromuscular junction, Excitation – contraction coupling, Mechanism of muscle contraction, General organization of Nervous system, Propagation of impulse, Mechanism of synaptic transmission, Sensory receptors, Sense organs, Digestion in monogastric and ruminant animals, Mechanism of breathing, Transport of blood gasses, Respiration in birds, Endocrine control of body functions, Role of hypothalamo - hypophysial axis on endocrine control, Feedback mechanism of hormone secretion, Male and female reproductive hormones, Endocrine control of male and female reproductive life, Mechanism of heat and cold adaptation in domestic animals.

2. Veterinary Biochemistry

Study of chemistry, properties and function of carbohydrates, lipids, proteins, vitamins, and nucleic acids. Enzyme – Definition properties, factors affecting enzyme catalysis kinetics, inhibition and regulation. Study of Metabolism of carbohydrates, lipids and proteins. Electron transport chain, energy metabolism in domestic animals. Principles of DNA recombinant technology, Embryo Transfer Technology(ETT), monoclonal antibodies. Biochemistry of hormones, source, structure and biochemical function. Biochemistry of blood and other body fluids. Role of Blood sugar, ketone bodies, proteins, enzymes, BUN in disease diagnosis. Biochemistry of respiration, renal function, detoxification in the body.

3. Veterinary and Animal Husbandry Extension

Philosophy ,Principles of Extension Education. Extension teaching methods, Adoption and diffusion of livestock innovations. Leadership and role of leaders in livestock development. Extension Communication. Farming system and farming type. Livestock and livestock products marketing. Social change Social groups. Social transformation in relation to animal rearing. Animal Husbandry programme, planning and evaluation. Panchayati Raj Institutions.

Animal Husbandry Development Programmes. Information communication technologies. E-learning. Information kiosks. Economics -wants, goods, wealth, utility, price, value, real and money income. Factors of production. Demand projections of livestock produce. Consumer behaviour, demand, supply and price determination. Marketing of livestock, and perishable and non-perishable livestock products. marketing channels, cattle fairs. Import and export of animal and animal products. Resource Management. Book keeping. Economics of a dairy unit, poultry, piggery, sheep and goat units. Livestock Entrepreneurship.

4. Animal Nutrition

Measure of feed energy, partitioning of feed energy. Energy and protein requirement for maintenance, growth, pregnancy, lactation, egg, wool and meat production, evaluation of protein quality for ruminants and non-ruminants. Non-protein nitrogen utilization in ruminants diets. Importance of minerals and vitamins in health and production, their requirement and supplementation in feed. Feed additives in rations of livestock and poultry. Preparation and conservation of fodder through hay and silage. Anti-nutritional and toxic factors present in different feed stuffs, Digestibility trials- direct, indirect and indicator methods. Feeding standard: their merits and demerit. Balanced ration and formulation of ration. Feeding of dairy cattle, buffaloes, sheep and goat in maintenance, growth, production and reproduction. Feeding of swine and poultry. Feeding of lab animals (rat, guinea pigs and rabbits). Feeding during scarcity and natural calamities.

5. Livestock Products Technology

Composition of milk, properties & factors affecting milk composition. Clean milk production, packaging of milk. Preparation of milk products and utilization of By-products. Construction of slaughter house and its sanitation. Pre-slaughter care, transport, Antemortem and post mortem examination, slaughtering and dressing techniques of food animals. Utilization of slaughter house by-products and organic wastes. Structure, composition and nutritive value of meat, poultry and egg. Different preservation techniques of meat and egg. Eating quality attributes sensory evaluation and preparation of diff meat products. Meat Food products order, meat cutting and packaging.

6. Livestock Production Management

Common animal husbandry terms, Livestock Production Systems, transport of livestock, organic livestock production. important breeds, feeding and management practices of calves, heifers, pregnant, lactating, dry, bulls and bullocks. Draughtability of cattle & buffalo. Housing systems. Factors affecting quality and quantity of milk production. Clean milk production. Economics of dairy farming. Sheep & goat population and breeds. Feeding and management, housing systems. Judging of cattle buffalo. Importance of grasslands and fodders in livestock production. Classification of fodder crops. Silage and hay making. Swine management. Dentition and ageing of horses. Handling, restraining, care and routine management of equines including grooming, saddling and exercise. Feeding routine for horse. Vices of horses. Doping and its detection. Care and management of mice, rats and guinea pigs. And their feeding . SPF and germ free laboratory animals. Overview of Indian Poultry Industry. Classification of poultry, common breeds of poultry including duck, quail, turkey & guinea fowl and their descriptions and their management. Backyard and semi intensive systems of rearing. Common poultry diseases. Vaccination schedule. Bio- security measures in poultry farms, vices of poultry.

7. Animal Genetics & Breeding

History of Genetics, Chromosome numbers and types in livestock and poultry, Mendelian principles, gene interaction; multiple alleles; lethal; sex-linked, sex limited and sex influenced traits; linkage and crossing over, Mutation, Chromosomal aberrations; Quantitative inheritance. Gene and genotypic frequency, Hardy-Weinberg law, Components of phenotypic and genotypic variance; Concept of genotype and environment interaction, Heritability, repeatability, genetic and phenotypic correlations. Classification of breeds; Economic characters of livestock and poultry, Basis of selection, Response to selection, Methods of selection, Selection for combining ability, sire evaluation, field progeny testing, Inbreeding, its merits and demerits, out breeding; crossbreeding, heterosis, open nucleus breeding system (ONBS), Conservation of germplasm, Current livestock and poultry breeding programmes in the state and country.
