Download Bihar Public Service Commission (BPSC Mains)

Optional Subject -

Animal Husbandry And Veterinary Science

ANIMAL HUSBANDRY AND VETERINARY SCIENCE

Section- I

1. Animal Nutrition- Energy sources, energy metabolism and requirements for maintenance and production of milk, meat, eggs and wool. Evaluation of feeds as sources of energy.

1.1 Advanced studies in Nutrition Protein- Sources of protein, metabolism and synthesis, protein quantity and quality in relation to requirements. Energy protein ration in a ration.

1.2 Advanced studies in Nutrition Minerals. – Sources, functions, requirements and their relationship of the basic mineral nutrients including trace elements.

1.3 Vitamins, Hormones and Growth Stimulating substances—Sources, functions, requirements and interrelationship with minerals.

1.4 Advanced Ruminant Nutrition Dairy Cattle– Nurtients and their metabolism with reference to milk production and its composition. Nutrients requirements for calves, heifers, dry and milking cows and buffaloes. Limitations of various feeding systems.

1.5 Advanced Non-Ruminant Nutrition Poultry- Nutrients and their metabolism with reference to poultry, meat and egg production. Nutrients requirements and feed formulation and broilers at different ages.

1.6 Advanced Non-Ruminant Nutrition Swine – Nutrients and their metabolism with special reference to growth and quality of meat production Nutrients requirements and feed formation for baby-growing and finishing pigs.

1.7 Advanced Applied Animal Nutrition- A critical review and evaluation of feeding experiments, digestibility and balance studies. Feeding standards and measure of feed energy. Nutrition requirements for growth, maintenance and production. Balanced rations.

2. Animal Physiology:

2.1 Growth and Animal Production- Prenatal and post-natal growth maturation, growth curves, measures of growth, factors affecting growth, conformation, body composition, meat quality.

2.2 Milk Production and Reproduction and Digestion– Current status of hormonal control of mammary development milk secretion and milk ejection, composition of

milk of cows and buffaloes. Male and female reproduction organs, their components and function. Digestive organs and their functions.

2.3 Environmental Physiology- Physiological relations and their regulation; mechanisms of adaption, environmental factors and regulatory mechanism involved in animal behavior, methods of controlling climatic stress.

2.4 Semen quality, Presevation and Artificial Insemination – Components of semen, composition of spermatozoa, chemical and physical properties of ejeculated semen, factors affecting semen in vivo and in vitro. Factors affecting semen preservation compostition of diluents, sperm concentration transport of diluted semen. Deep Freezing techniques in cows, sheep and goats, swine and poultry.

3. Livestock Production and Management:

3.1 Commercial Dairy Farming- Comparison or dairy farming in India with advanced countries. Dairying under mixed farming and as a specialised farming; economic dairy farming, starting of a dairy farm. Capital and land requirement, organisation of the dairy farm, Procurement of goods; opportunities in dairy farming factors determining the efficiency of dairy animal. Herd recording, budgeting, cost of milk production; pricing policy; Personnel Management.

3.2 Feeding practices of dairy cattle – Developing Practical and Economic ration for dairy cattle; supply of greens throughout, the year, field and fodder requirements of Dairy farm. Feeding regimes for day and young stock and bulls heifers and breeding animals; new trends in feeding young and adult stock: Feeding records.

3.3 General Problems of sheep, goat, pigs and poultry management.

3.4 Feeding of animals under drought conditions.

4. Milk Technology:

4.1 Organçation of rural milk procurement, collection, and transport of raw milk.

4.2 Quality testing and grading raw milk. Quality storage grades of whole milk, skimmed milk and cream.

4.3 Processing packaging storing distributing marketing defects and their control and nutritive properties of the following milks. Pasteurçed, standardçed, toned, double tones sterilçed, Homogençed, reconstituted, recombined, field and flavoured milks.

4.4 Preparation of cultured milks, cultures and their management Vitamin D soft curd acidified and other special milks.

4.5 Legal standards, Sanitation requirement for clean and safe milk and for the milk plant equipment.

Section- II

1. Genetics and Animal Breeding: Probability applied to Mendelian inheritance Hardy Weiberg Law Concept and measurement of inbreeding and heterozygosity Wright's approach in contrast to Melecot's Estimation of Parameters and Measurements. Fisher's theorem of natural selection, polymorphism polygenic Systems and inheritance of quantitative traits. Casual Components of Variation Biometerical models and covariance between relatives. The theory of pathocoefficient applied to quantitative genetic analysis. Heritability Repeatability and selection models.

1.1 Population, Genetics applied to Animal Breeding. – Population vs. individual, population sçe and factors changing it. Gene numbers, and their estimation in farm animals, gene frequency and zygotic frequency and forces changing them, Mean and variance approach to equilibrium under different situations, sub-division of phenotypic variance; estimation of additive, Non additive genetic and environmental variances in Animal Population, Mendelism and blending inheritance. Genetic nature of differences between species, races, breeds and other sub specific grouping and the grouping and the origin of group differences Resemblances between relatives.

1.2 Breeding systems- Heritability, repeatability, genetics and environmental correlations methods of estimation and the precision of estimates of animal data Review of biometrical relations between relatives. Mating system, inbreeding, out breeding and used phenotypic assertive mating Aids to selections. Family structure of animal population under non-random mating systems. Breeding for threshold traits, selections index, its precision.

General and specific combining ability. Choice of effective breeding plans.

Diffferent types and methods of selection, their effectiveness and limitations, selection indices construction of selection in retrospect; evaluation of genetic gains through selection, correlated response in animal experimentations.

Approach to estimation of general and specific combining ability, Diallete fractional diallete crosses, reciprocal recurrent selection; in breeding and hydrçation.

2. Health and Hygiene- Anatomy of Ox and fowl. Histological technique, freezing, paraffin embeding etc. Preparation and staining of blood films.

2.1 Common histological stains, Embryology of a cow.

2.2 Physiology of blood and its circulation, respiration; excretion, Endocrine glands in health and disease.

2.3 General Knowledge of pharmacology and the repeutics of drugs.

2.4 Vety-Hygiene with respect of water, air and habitation.

2.5 Most common cattle and poultry diseases, their mode of infection, prevention and treatment etc. Immunity, General Principles and Problems of meat inspection Jurisprudence of Vet practice.

2.6 Milk Hygiene.

3. Milk Product Technology– Selection of raw materials, assembling production. processing, storing, distributing and marketing milk products such as Butter, Ghee, Khoa, Channa, Cheese, condensed, evaporated dried milk and baby foods; Ice cream and Kulfi, by products; whey products, butter milk, lactose and casein; testing Grading, gudging mill products – ISI and Agmark specification, legal standards, Quality control nutritive properties. Packaging processing and operational control Costs.

4. Meat Hygiene.

4.1 Zoonosis Diseases transmitted from animals to man.

4.2 Duties and role of Veterinarians in a slaughter house to provide meat that is produced under ideal hygienic conditions.

4.3 By products from slaughter houses and their economic utilçation.

4.4 Methods of collection, preservation and processing of hormonal glands for medicinal use.

5. Extension:

5.1 Extension Different methods adopted to educate farmers under rural conditions.

5.2 Urilisation of fallen animals for profit-extension education etc.

5.3 Define Trysem. – Different possibilities and methods to provide self Employment to educated youth under rural conditions.

5.4 Cross breeding as a method of upgrading the local cattle.