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Animal Husbandry & Veterinary Science Syllabus for Uttarakhand State Civil Services Main Exam-2011

ANIMAL HUSBANDRY & VETERINARY SCIENCE

PAPER-I

SECTION-A

A. Animal Nutrition:

1. Energy Nutrition: Energy sources, energy metabolism. Requirement of energy for maintenance and Production of milk, meat, eggs and work energy evaluation of foods.

2. Protein Nutrition: Sources of protein, digestion and metabolism of protein, evaluation, requirements of protein for maintenance and production, Energy protein ratio in a ration.

3. Mineral Nutrition: Sources function, deficiency symptoms, requirement for animals and their relationship with vitamins.

4. Vitamins: Sources function, deficiency symptoms, requirements and interrelationship with minerals feed additives.

5. Applied Nutrition: Evaluation of feeding experiments, digestibility and balance studies. Feeding standards measures energy and proteins for ruminants and unruminants, Nutrient requirement for growth, Maintenance and production, Balanced ration.

6. Ruminant Nutrition: Nutrient and their metabolism with reference to milk production and its composition. Nutrient requirements and feed formulation for calves, heifers, dry and milking cows and buffaloes.

7. Non-ruminant Nutrition: Nutrient and their metabolism with special reference to meat an egg production. Nutrient requirements and feed formulation for layer, broiler and pig.

8. Common Feeds and Fodders and their Nutrition: Characteristic for hill region. Conventional and non-conventional feeds.

B. Animal Physiology:

1. Growth and Animal Production: Parental and Post natal growth, maturation, growth curves, measures of growth, factors affecting growth, body composition and meat quality.

2. Milk Production: Hormonal control of mammary development. Milk secretion and milk ejection, composition of milk of cows and buffaloes.

3. Animal Reproduction: Male and female reproductive organ, their components and functions.

4. Digestive Physiology: Organs of digestion and their functions. Digestion of carbohydrates, protein and fat in ruminants and non-ruminants.

5. Environmental Physiology: Physiology relations and their regulation mechanism of adaption, environmental factors and regulatory mechanism involved in animal behaviour. Method of controlling climatic stress.

6. Semen Quality Preservation and Artificial Insemination: Components of semen, composition of spermatozoa, physical and chemical properties of ejaculated semen, semen preservation, composition of dilutents. Sperm concentration, transport of diluted semen, deep freezing techniques.

SECTION-B

C. Livestock Production and Management:

1. Commercial Dairy Farming: Comparison of dairy farming in India with advanced countries. Dairying under mixed farming and as specialized farming, economic dairy farming, starting of dairy farm capital and land requirements, organization of dairy farms, procurement of goods, opportunities in dairy farming, factors determining the efficiency of dairy animals, herd recording, budgeting, cost of milk production, pricing policy, personnel management.

2. General Managements: Managements of livestock (Pregnant and milking cows, newly born calves), livestock records, principles of clean milk production, economics of livestock farming Housing for livestock and poultry. General problems of sheep, goat, pigs, rabbits and poultry management

3. Feeding Management: Developing practical and economic rations for dairy cattle, supply of green fodder throughout the year, Land and fodder requirement of dairy farms, feeding regimes for dry, young stock, bulls, heifers and breeding animals.
4. Management of Animals under Drought Conditions: Feeding and management of animal under drought, flood and other natural calamities.

D. Milk and Milk Products Technology:
1. Milk Technology: Organization of rural milk procurement, collection and transport of raw milk. Quality, testing and grading of raw milk. Quality, storage, grade of whole milk, skimmed milk and cream. Processing, packing, storing, distributing, marketing defects and their control and nutritive properties of the following milk. Pasteurized, standardized, Toned, double toned, sterilized, homogenized, reconstituted, recombined and flavoured milk. Culture and their management, Yoghurt, Dahi, Lassi, srikhand, legal standards, sanitation, requirement for clean and safe milk and for the milk plant equipments.

2. Milk Product Technology: Section of raw materials, assembling, production, proces ing, storing, distributing and marketing milk products such as butter, ghee, khoa, chenna, cheese, condensed, evaporated, dry milk, baby food, icecream and kulfi. Testing, grading, judging of milk products. BIS and Agmark specification, legal standards, quality control and nutritive properties. Packing, processing and operational control cost.
3. Milk Byproducts Technology: Whey products, butter milk, lactose and casein.
4. Import and Export of Livestock and Livestock Products.

PAPER-II
SECTION-A

A. Genetics and Animal Breeding:
1. Animal Genetics: Mitosis and meiosis, Mendelism inheritance, deviations to Mendalian genetics, Expression of genes, Linkage and crossing over, sex determination, sex influenced and sex limited characters, Blood groups and polymorphism, chromosomal aberrations, Gene and its structure, DNA as a genetic material, Genetic code and protein synthesis, Recombination DNA technology, mutation-type of mutations methods for detecting mutations and mutation role.
2. Population Genetics Applied to Animal Breeding: Quantitative Vs qualitative traits, Hard weinbery law, Population Vs Individual, Gene and genotype frequency. Forces charging gene frequency, random drift and small population, Inbreeding, methods of estimating inbreeding co-efficient, systems of inbreeding. Effective population size, Breeding value, estimation of breeding value, dominance and epistatic deviation, partitioning of variation, genotype environment correlation and genotype environment interaction.
3. Breeding System: Heritability, repeatability and genetic and phenotypic correlation their methods of estimation and precision of estimates. Aids to selection and their relative merits, individual, pedigrea, family and within family selection progeny testing, method of selection, basis of selection response to selection and its measure, selection differential sireinder, selection index, recurrent and reciprocal recurrent selection, establishment of new breed, inbreeding, out breeding, upgrading hybridization, crossbreeding, out crossing. Approach to livestock breeding policy for hill areas.
B. Health and Hygiene: 1. Anatomy of ox and fowl. Histological techniques. Freezing, paraffin embedding etc. Preparation and staining of blood film. 2. Common histological stain and embryology of cow. 3. Physiology of blood and its circulation, digestion, respiration, excretion, endocrine gland in health and diseases. 4. General knowledge of Pharmacology and therapetics of drugs. 5. Veterinary hygiene with respect of water, air and habitation environmental hygiene. 6. Milk hygiene, meat hygiene.

SECTION-B

C. Animal Diseases:

1.Immunity and Vaccination: Approach to disease management. Quarantine Types of immunity and vaccines Principles and methods of immunization of animals against specific diseases, herd immunity, disease free zones, zero disease concept, chemoprophylaxis.

2. Diseases of Cattle, Buffalo, Sheep and Goats: Etiology, symptoms, diagnosis, prevention and control and treatment of the following diseases: Metabolic diseases Mineral deficiency disease of livestock: Plant and other toxicities Anthrax, haemorrahagic septicaemia, black quarter, mastitis, tuberculosis, Johnes diseases, Foot and mouth diseases, Rinderpest rabies, piroplasmosis, Trypnasomiasis Faciolisis tympanitis. Diseases of new born calf.

3. Disease of Poultry: Etiology, symptoms, diagnosis, prevention, control and treatments of Ranikhet disease, Fowl pox, Avian leacosis complex. Marek's disease and gumboro disease.

4.Disease of Swine: Swine fever, Hogcholera.

5.Disease of Dog: Canine distemper, parvo diseases, Rabies in pets in relation to human health.

D. Veterinary Public Health:

1. Zoonoses: Classification, definition, role of animals and birds in transmission of zoonotic diseases. Zoonotic diseases caused by various agents and their control.

2. Veterinary Jurisprudence: Rule and regulations for improvement of animals quality and prevention of animal diseases. Materials and methods for collection of samples for veterolegal investigation. Presentation of cruelity to animals.

3. Duties and role of veterinanian in slaughter house to provide meat that is produced under ideal hygienic conditions.

4. Byproducts from slaughter houses and their economic utilization.

5. Method of collection, preservation and processing of hormonal glands for medicinal use.

E. Extension: Basic philosophy, objectives, concept and principles of extension, different methods adopted to educate farmers under rural conditions. Generation to technology, its transfer and feed back. Problems and constraints in transfer of technology. Animal husbandry to programmers for rural development.