DETAILED SYLLABUS FOR THE POST OF LIVE STOCK INSPECTPR GR.II/SUPERVISOR

IN

KERALA LIVE STOCK DEVELOPMENT BOARD LIMITED

(Cat.No.654/2021)

(Total Marks 100)

Introduction to Animal Husbandry

Livestock statistics - Current population status of cattle, buffalo, goat, sheep, pig, chicken, duck, turkey, quail. Contribution of livestock to Indian Economy .Current production status of livestock sector - Impact of livestock sector on Indian economy

Common terminologies of Animal Husbandry - Different terms associated with the husbandry of cattle, buffalo, goat, sheep, pig, chicken, duck, turkey and quail.

Farming systems - Farming systems (mixed, diversified, specialised, organic, integrated) and types of Dairy farming (family cow ,commercial ,corral, high-tech).

Advantages and disadvantages of rearing animals and birds .

Breeds of Livestock

Definition of breed , class, variety and strain.

Comparison of Indian and exotic breeds of cattle

Classification and comparison of breeds according to origin and utility .

Breeds of cattle - Origin, breed characteristics and salient features of Sahiwal, Red Sindhi, Gir, Deoni, Hallikar, Kangayam, Amrit Mahal, Kankrej, Hariana, Tharparkar, Vechur, Kasaragod dwarf, Jersey, Holstein Friesian, Brown Swiss

Breeds of buffalo - Origin, breed characteristics and salient features of Murrah, Surti, Jaffarabadi ,Mehsana, Nili Ravi

Breeds of goats and sheep - Origin, breed characteristics and salient features of Malabari, Attapady black, Beetel, Jamunapari, barbari, Saanen, Alpine, Boer, Kashmiri, Marwari, merino etc.

Breeds of pigs - Origin, breed characteristics and salient features of large white Yorkshire, Landrace, Duroc, Berkshire, Hampshire

Breeds of chicken - Origin, breed characteristics and salient features of White leghorn, Black Minorca, RIR, New Hampshire, Australorp, Plymouth rock, Cornish, Brahma, Cochin, Aseel, Kadaknath, Naked neck, Austro-white, Gramapriya, Athulya, Giriraja .Classification of fowls based on geographical distribution with class characteristics (American,English,Mediterranean,Asiatic) Breeds of duck, turkey, quail - Origin, breed characteristics and salient features of Muscovy, White Pekin,

Indian runner, Khakhi Campbell, Chara, Chemballi, Broad breasted bronze, Beltsville small white, Japanese quail, bobwhite quail

Identification of Animals and Age Determination of Cattle

Comparison of different methods of identification commonly used in animals .Commonly used methods of identification in animals and birds - Hot iron branding, Chemical branding, Freeze branding, Tattooing, Tagging, Ear notching, Wing/leg bands, wing badges for birds, Electronic chips/transponders .

Determination of age in cattle - Importance of age determination in cattle - Dental formula in cattle (permanent and deciduous) - Age determination by looking at dentition - Age determination by looking horn rings

Restraining of Animals

Approaching the animal - Animal behaviour - Precautions while approaching the animal

Restraining - Purpose of restraining . Method of Restraining of head and neck Method of Restraining of fore and hind limbs .Whole body restraining - Precautions for casting - Reuff's method of casting - Alternate method of casting .

Instruments used for controlling animals - Instruments used for controlling head and neck, limbs and whole body .

Anatomy and Physiology

Basics of anatomy and physiology of cattle, goat, pig, dog ,poultry- Definitions - Anatomical Peculiarities (bone, RBC, liver, kidney, spleen, stomach)

Body parts of cattle - Different body parts (regions, body cavities, joints, bones) .

Normal physiological values of animals – Significance of normal physiological values - Normal range of values in cattle, buffalo, goat, pig, dog and chicken (temperature, pulse, respiration, age of puberty, rumen motility, gestation period, life span). Measuring the most important normal physiological values of cattle - Measuring Pulse - Recording Respiration - Recording rectal temperature - Rumen motility - Different conditions in which the normal values change .

Structure and function of ruminant stomach - Structure of ruminant stomach - Process of ruminant microbial digestion. Esophageal groove and its significance.Difference in digestion of ruminant and non ruminant stomach

Structure and function of reproductive system of cattle - Detailed structure and function of bovine female and male reproductive System - Structure of bovine spermatozoa. Hormonal regulation of reproduction and oestrus cycle - Hormonal interplay of female reproduction – Hormonal interplay of male reproduction - Sexual maturity and puberty - Estrus cycle and heat signs .

Structure and function of mammary gland - Structure of udder - Mechanism of milk production - Hormonal role in lactation - Peak production and drying up – methods of drying - Milking methods - Hand milking-Machine milking.

Rearing and Housing of Livestock

Establishment of livestock farm - Requirements for dairy and poultry farms

Systems of rearing for cattle • Free range system • Intensive system • Semi-intensive system .

Systems of rearing for poultry • Free range system • Intensive system (deep litter and cage system) • .Backyard rearing of poultry. Semi-intensive system.

Housing of cattle and poultry - Requirements and dimensions of a standard cattle shed and poultry house .

Manure and waste disposal - Collection, storage and disposal of manure - Vermi-composting - Biogas plant

Husbandry of Goats

Advantages of goat rearing .Systems of rearing goats .

Care and management of different age groups of goats - Housing requirements of goats - Feeding of goats - Care and management of kids - Care and management of does and bucks - Care and management of pregnant does - Care and management of lactating does.

Breeding and selection of dairy goats - Selection methods - Breeding methods.

Diseases of goats - Bacterial, viral, metabolic diseases of goats and control measures (Tetanus, CCPP,Enterotoxaemia, PPR,Lactic acidosis)

Anatomy and physiology of poultry

Digestive system- mouth, oesophagus, stomach, liver and pancreas, small intestine, caeca, cloaca

Reproductive system - Male and female

Respiratory system- syrinx, airsacs - Skin and feathers - types of feathers

Egg formation - Physiology of egg formation

Effect of light on egg formation

Moulting and bleaching - Definition - Relation with egg production

Breeding and Reproduction in Animals

Basic concepts in breeding - Genotype and phenotype

Selection and breeding methods - Random selection, Individual selection, Family selection, Pedigree selection, Progeny testing, Inbreeding, Out-breeding, Methods of cross breeding,species hybridization,grading up

Artificial insemination (A.I) in animals - Purpose , limitations of A.I - Semen collection and examination - Semen extenders and preservation (metods of evaluation,types of preservation and diluents)–Insemination - Familiarization of

equipment used for A.I - Heat detection - Technique of A.I in cattle (Recto vaginal method) - Speculum method for small animals .

Pregnancy and parturition - Basic concepts of gestation period, fertilization and placentation - Pregnancy diagnosis - Stages of parturition and signs of calving - Difficult calving (dystocia) - Involution of uterus, service period, inter-calving period, dry period.

Embryo transfer technology - Uses of embryo transfer technology - Method of embryo transfer Technology

Infertility in cattle - Concepts of infertility and sterility - Causes of infertility - Prevention of infertility

Care and Management of Cattle

Care and management of new born calves - Importance of colostrum feeding - Artificial respiration - Cutting of umbilical cord - Weaning - Feeding of calves - Dehorning - Deworming - Castration

Effect of climate on animals - Homeostasis - Critical temperature - Summer management

Herd replacement - Culling and replacement - Methods of culling and replacement

Principles of Feeding in cattle

Important nutrients required for animals – Water, Protein, Carbohydrates, Lipids, Vitamins, Minerals – their function.Important concepts of feed formulation - Proximate principles like Digestible crude protein (D.C.P), metabolizable energy (M.E), total digestible nutrients (T.D.N) etc.

B.I.S specifications of feed - Feed mixing

Different feed ingredients and preservation of fodder - Concentrate feed ingredients - Roughages - Unconventional feed stuff - Leguminous fodder (cow pea, subabul) - Cultivation details of different fodder grasses (Guinea, Napier, para, congo signal) - Preserved fodder (Silage, Hay, Straw) - Nutrient enrichment of straw - commercial feed for cattle (TMR feed, by pass protein feed) Thumb rules for feeding animals - Maintenance ration for each category of animals - Production ration for lactating animal - Pregnancy ration - Ration for draught animals

Health Care

Definition of health and disease - Signs of health .

Natural defense mechanisms - Functions of different body parts in preventing disease .Routes of infection and classification of diseases - Different ways in which micro-organisms enter animal body - Types of diseases

Common diseases of animals - Etiology, Important symptoms and control measures of Bacterial diseases, Viral diseases, Metabolic diseases, Parasitic diseases - Phyto and chemical toxicity in cattle. Control of diseases - Treatment - Disinfection - Vaccination - Quarantine - Disposal of dead animals

Swine Husbandry

Advantages and disadvantages of pig farming .

Housing requirements of swine - general guidelines of housing - space requirements for housing piglets, boar, sow, breeding animals

Age wise management of pigs (feeding,breeding and management of boar,gilts, sow ,pregnant sows ,farrowing sows and piglets ,growing and finishing pigs) -Selection criteria for breeding boar.

Introduction to Poultry Husbandry

Poultry related terms- Poultry, broiler, chick, grower, lay er

External morphology of chicken

Scientific names of different species of poultry - Chicken, duck, turkey, quail

Trends in poultry Industry- Current scenario of poultry industry in Kerala and India - Merits and demerits of poultry rearing

Feeds and feeding of poultry

BIS standards for poultry feeds - BIS standards of crude protein and metabolisable energy for broiler and layer chicken feeds

Poultry feed ingredients - Common ingredients used for the formulation of poultry feed

Feeding systems - Adlibitum feeding - Restricted feeding - Mash feeding - Pelleted feeding - Phase feeding

Feed efficiency and feed additives - Definitions - Feed efficiency in layers and broilers

Feed additives : Nutritive and non nutritive

Feeders and waterers - Different types of feeders and waterers

Feed requirement for chicken - Average requirement of total feed for chicks, growers, layers and broilers

Management of chicken

Management of chicks - Brooding – types of brooding, brooder set up,Brooder management, debeaking, dubbing and sexing of chicks

Management of growers- Space requirement and general management

Management of layers – Summer management-Factors influencing egg production - Culling of layer birds (differentiating good and poor layers), Standards of egg production, Managemental practices for producing good quality eggs .

Management of breeders - Mating methods, Artificial insemination in chicken - Trap nesting Management of broilers - General guidelines for broiler management.

Nutrient requirements

Selection of eggs and Hatchery management

Structure of egg - Yolk, Albumen, shell membranes, shell

Abnormal eggs - Double yolked egg, an egg within an egg, pale egg, soft shelled egg, blood spot, meat spot

Candling and grading of eggs - method of candling and Grade as per quality

Selection of hatching eggs- Size, shape, shell quality and internal quality

Incubation -Natural incubation, Artificial incubation, Management of incubator,Types of incubator,Parts of incubator, Physical requisites for incubation,Incubation period of various species of poultry

Hatchery operations - Collection of eggs, selection , fumigation, candling, setting, transfer, taking out of hatch, identification, sexing, vaccination, dubbing, debeaking, packing and despatch of chicks

Diseases of poultry

Bacterial diseases of chicken - Pasteurellosis - Pullorum disease

Viral diseases of chicken - New castle disease (NCD) - Fowl pox - Marek’s disease (MD) - Infectious bursal disease (IBD) - Avian influenza

Fungal diseases of chicken – Aspergillosis

Protozoan diseases of chicken – Coccidiosis

Parasitic diseases - Endoparasites - Round worm infection (Ascaridia galli), Caecal worm infection - Ectoparasites – Lice, mites and ticks infestation

Nutritional deficiency diseases - Rickets - Vitamin A deficiency - Crazy Chick disease - Curled toe paralysis

Prevention of diseases - Treatment - Vaccination - Litter management - Disinfection - Deworming - Fumigation - Biosecurity measures - Screening tests-

Hatchery management for disease prevention

Rearing of duck, turkey and quail

Husbandry of ducks - Advantages of duck rearing - Housing, feeding and management of ducks –Incubation- Sex differentiation

Diseases of ducks and health care - Pasteurellosis -Duck plague - Duck hepatitis - Aflatoxicosis

Husbandry of Turkey - Housing, feeding and management of Turkey - Sex differentiation. Diseases of turkey and health care - Pasteurellosis - Black head disease

Husbandry of quail - Advantages of quail rearing - Housing , feeding and management of quail - Sex differentiation. Diseases of quail and health care - Quail enteritis

Milk and milk products

Nutritive value of milk - Water, fat, protein, lactose, ash.

BIS standards of milk and milk products - Cow milk, buffalo milk, goat milk, toned milk, double toned milk, ice cream, whole milk powder, table butter, ghee.

Preservation of milk - Pasteurization, sterilization, chilling .

Types of milk commercially available - Toned milk, double toned milk, Homogenized milk, Condensed milk

Preparation of various types of milk products - Acid Coagulated products-Paneer - Concentrated products - Khoa, Gulab jamun - Fermented products -Dahi,Cheese - Fat rich products – Ghee, Cream - Frozen products – Ice cream- Byproducts from milk - Butter milk, Whey, skim milk

Wholesome milk production

Measures for clean milk production - Sources of contamination and hygienic measures

Adulterants of milk - Starch, Cane sugar, Water –Tests used for detection of adulteration.

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper