84. PG DIPLOMA IN SERICULTURE

100 Marks

GENERAL SERICULTURE AND MORICULTURE:

UNIT-I: Introduction to sericulture:- origin and history of sericulture, silk route; distribution of sericulture in world, components of sericulture (mulberry, rearing, seeling, grainage and weaving) end products of each components & their economic importance. Environmental impact on sericulture, eco-friendly activity of sericulture, employment generation in different components, importance of sericulture in rural development, role of women in sericulture, role of NGOD, International sericulture commission, Private Partners, State, Nation. **UNIT-II**: Sericulture development & organization; economics on silk production, income generation through sericulture. Prospects and problems of sericulture, future strategies for sound sericulture. **UNIT-III**: Moriculture and its botanical aspects: History, origin, distribution and economical importance of the family; Moraceae, systematics of the genus morus and its species and varieties, pure and cross breeds in India and abroad, optimum environment condition for growth and productivity. Botanical description of mulberry: Anatomy of mulberry root, stem, leaf, flower and fruit. Mulberry production and establishment: propagation of mulberry - sexual and asexual methods, raising and maintenance of nurseries for saplings. **UNIT-IV**: Package and practices: soils for mulberry cultivation, soil sampling and testing, problematic soils & their reclamation; plant nutrient management:- organic manures, inorganic fertilizer, bio fertilizers and irrigation management (sources, methods, impact on mulberry crops and schedules): mulching and intercultivation. Establishment and maintenance of mulberry garden; package of practices for rainfed and irrigated garden, chawki gardens and weed management. Pruning of mulberry, harvesting, transportation and preservation of mulberry leaves: objectives and methods.

SILKWORM BIOLOGY & REARING TECHNOLOGY:

UNIT-I: Salient features of class Insects - Classification of Serigenous Insects – Characteristics features of order Lepidoptera - families 1) Bombycidae and Saturnidae- economical importance of insects Classification of Silkworms – Based on origin. Geographical distribution, voltanism and moultinism - popular mulberry silkworm species and varieties of Telangana and India. Biology of Silkworm Bombyx mori – Life cycle of Bombyx mori. **UNIT-II:** Morphology of B. mori: egg, larva, Pupa and moth. Metamorphosis – Definition, types and Significances. Anatomy:- digestive system, circulatory system - excretory system - nervous system, male and female reproductive system, structure and function of silk glands. **UNIT-III**: Rearing House:- model rearing house, types of rearing houses, rearing appliances- disinfection of rearing house and appliances-personal hygiene. Procurement of DHS – transportation proceedures. Incubation – Definition, environmental requirements, black boxing and its importance. Brushing - Definition; types of brushing and its importance. **UNIT-IV**: Chowki rearing:- Preparation:- brushing & its methods, rearing -optimum condition, chawki methods and frequency of feeding, bed cleaning & methods of cleaning, spacing moulting & care during moulting. Late rearing: methods, optimum condition, feeding, bed cleaning and methods – spacing, moulting & care to be taking during moulting. **Spinning:** Identification of spinning worms, mounting and mounting density – types of mountages – environmental conditions during spinning and moulting. Moulting – identification of moulting worms and care. **Harvesting:** Time of harvesting, harvesting methods, storage, preservation, transportation and marketing of cocoons- time and procedure to be followed. Mounting – identification of worms, mounting and spinning of larvae.

SILKWORM SEED TECHNOLOGY:

UNIT-I: Seed technology: introduction, concept and general account of silkworm seeds. Seed organization – concept and significance, maintenance of parent stock Basic multiplication centers (P4, P3, P2 and P1 centers, Seed areas - seed cocoon rearers – seed cocoon markets – transaction procedures – significance). Planning for pure and hybrid silkworm, egg production, purchase of bivoltene and multivoltine seed cocoons from markets deflossing, sorting & preservation, pupal examination & its function. **UNIT-II:** Grainages: Location, ground plan, model grainage – grainage equipments and their usage, maintenance of environmental factors in grainage, disinfection and hygience conditions in grainage. Grainage management:- staff and labour maintainence, care to be taken while carrying out grainage activities. Sex separation of pupa and moth, synchronization of moth emergence. **UNIT-III**: Processing of eggs: Selection of moth, coupling, decoupling, oviposition-preservation of moths, preparation of starch coated paper – method of egg laying (egg sheet and loose eggs), weighing disinfection of egg sheet/washing of eggs, weighing and packing of loose eggs, Pupal and mother moth examination: types of examination – green and dry moth examination, individual, sample and mass examination; precautions. **UNIT-IV**: Handling and preservation of eggs:- Acid treatment – hot and cold acid treatment, advantages and disadvantages Preservation and handling of hibernated eggs for 3, 4, 6 and 10 months hibernation schedule, incubation of acid treated and hibernated eggs

POST COCOON TECHNOLOGY:

UNIT-I: Textile fibers – Brief introduction to natural & synthetic fibres and their uses. Cocoon characteristic, structure of fibre; physical and commercial characteristic of cocoons, importance and problems of reeling in industry. Cocoon sorting – objectives & proceedure: defective cocoons, marketing of cocoons – functions & proceedure. **UNIT-II:** Cocoon handling, Selection, preservation of cocoons, Cocoon stifling:- objectives, factors and methods – sun drying, steam stifling, hot air drying, Yamato hot air dyiers – advantages and disadvantages: coccon sorting: preservation of cocoons. Cocoon cooking:- Objectives, factors and methods – open pan, three pan, pressurized, floating and sunken system- merits and demerits. Brushing – objectives – method – advantage and limitations. **UNIT-III:** Silk Reeling:- Evolution of silk reeling, reeling units – charaka, cottage basin, multiend, semi automatic and automatic reeling devices – components and their functions. Re reeling and packing: objectives, grant reeling, hank preparation, lacing, skeining, booking, baling and bundling. Raw silk properties – physical, chemical and microscopic; factor influencing the properties/ silk quality of raw silk, silk exchange – structure and function. **UNIT-IV:** Raw silk testing and grading:- objectives of testing/grading, Raw silk testing: Visual, winding, evenness, cleanness, neatness, tenacity and elongation, cohension and condition weight:- raw silk grading – international standards and bureau of International standards BIS. Doubling, twisting, weaving, degumming, bleaching and silk dyeing – objectives and methods.