

I SEMESTER

PAPER- 1. SERICULTURAL BOTANY AND SILKWORM BIOLOGY

3 hrs/week X 15 = 48 hrs.

**Part A: General Sericulture.**

**Unit-1**

- |  |        |
|--|--------|
| 1. Introduction to Sericulture-Origin and history of Sericulture- Silk road, spread of Sericulture to Europe, South Korea, Japan, India and other countries. | 2 Hrs  |
| 2. Sericulture map of India and World: Components of Sericulture.  | 3 Hrs. |
| 3. Sericultural practices in tropical and temperate climate;   | 2 Hrs. |
| 4. Employment generation in sericulture-Role of women in sericulture   | 2 Hrs. |

**Unit-2**

- |   |       |
|---|-------|
| 5. Textile fibres: Types- natural and synthetic fibres- types of silk produced in India; Importance of mulberry silk.   | 1Hrs. |
| 6. Sericultural practices in rain-fed and irrigated conditions; traditional and non-traditional areas.  | 2Hrs. |
| 7. Sericulture organization in India and Karnataka; role of state departments of Sericulture, Central Silk Board, Universities and NGOs in Sericulture development. | 2Hrs. |

**Part-B: Sericultural Botany.**

**Unit-3**

- |   |        |
|---|--------|
| 8. Taxonomy of mulberry and food plants of silkworms: Study of salient features of the families-Moraceae. | 3 Hrs  |
| 9. Morphology of mulberry: different varieties of mulberry with special reference to Karnataka.           | 2 Hrs. |

**Unit-4**

- |  |        |
|--|--------|
| 10. Anatomy of mulberry: internal structure of stem, root and leaf; secondary growth in root and stem  | 6 Hrs. |
| 11. Floral biology of mulberry: Sexual behavior, different types of anther and ovule in mulberry; micro- and megasporogenesis; development of male and female gametophytes; pollination, fertilization; development of endosperm, embryo and seed; polyembryony and parthenocarpy in mulberry. | 6 Hrs. |
| 12. Weeds of mulberry garden: Classification and characteristics.  | 2 Hrs  |

**Part -C: Silkworm Biology.**

**Unit-5**

- |   |        |
|---|--------|
| 13. Characteristic features of the order Lepidoptera; detailed study of the families- Saturniidae and Bombycidae. Classification of sericigenous insects.             | 2 Hrs. |
| 14. Classification of silkworms based on moultnism, voltinism and geographical distribution; popular silkworm breeds and hybrids of Karnataka; their economic traits. | 3 Hrs. |
| 15. Life cycle of <i>Bombyx mori</i> ; morphology of egg, larva, pupa and adult.  | 3Hrs   |

**Unit-6**

- |   |       |
|---|-------|
| 16. Morphology and anatomy of digestive, circulatory, excretory, respiratory, nervous system of silkworm larva. | 4 Hrs |
| 17. Morphology and anatomy of reproductive systems of silk moth.  | 2 Hrs |
| 18. Morphology and anatomical structure of Silk gland.  | 1 Hrs |

**PRACTICAL-1- SERICULTURAL BOTANY AND SILKWORM BIOLOGY. 15 Practicals -3 hrs each**

**General Sericulture;**

1. Sericulture maps: (a) World maps and Silk Road. (b) Sericulture map of India and Karnataka. 1 Prct.
2. Preparation of histograms and pie charts on:
  - (a) Production of textile fibers in India.
  - (b) World silk production.
  - (c) Pie chart on mulberry and non-mulberry silk production in India. 1 Prct.

**Sericultural Botany;**

3. Taxonomic description of mulberry. 1Prct.
4. Study of five popular mulberry cultivars of Karnataka(Mysore local, K<sub>2</sub>, S<sub>36</sub>, S<sub>13</sub> and V<sub>1</sub>) 1Prct.
5. Mounting of Pollen grains, Ovary and Embryo 1 Prct.
6. Anatomy of petiole, leaf lamina, stem and root 2 Prct
7. Weeds of mulberry garden. 1 Prct

**Silkworm Biology;**

8. Life cycle of *Bombyx mori*- Morphology of egg, larva, pupa and adult of *Bombyx mori*. 1 Prct.
9. Sex separation in larva, pupa and adult of the silkworm *Bombyx mori* 1 Prct.
10. Dissection and display of:
  - (a) Digestive system of larva.
  - (b) Silk glands.
  - (c) Reproductive system of male and female moths.
  - (d) Mounting of larval mouth parts and spiracle.
  - (e) Nervous system of silkworm larva. 5 Prct