

## Code 04 : MAJOR SUBJECT GROUP – ENTOMOLOGY AND NEMATOLOGY

( Subjects : 4.1 : Agricultural / Horticultural Entomology, 4.2 : Nematology, 4.3 : Apiculture, 4.4 : Sericulture, 4.5 : Plant Protection. )

**UNIT – I :** Importance of Agriculture in national economy; basic principles of crop production; cultivation of rice, wheat, chickpea, pigeon – pea, sugarcane, groundnut, tomato, cole crops, mango, grapes, banana, oilseeds other than groundnut, soybean and mustard. Major soils of India, role of NPK and their deficiency symptoms. Mendelian genetics; elementary knowledge of photosynthesis; respiration, and transpiration; Major cropping systems ( rice – wheat cropping, crop rotations, mixed cropping );

Soil degradation – soil salinity and acidity and management; some aspects of post – harvest technology; varietal improvement; importance of Heterosis in crop production; crop protection principles in field and storage. Major insect pests and diseases of agricultural crops like rice, cotton, pulses, oilseed crops like groundnut, soybean and mustard, vegetables like tomato, cole crops; fruit crops like mango and banana and their management principles. Transgenic crops. Important rural development programs in India; organizational set up of agricultural research, education and extension in India; Elements of statistics.

**UNIT – II :** Classification of animal kingdom up to class; distinguishing characters up to orders in class Insecta; general organization of an insect external morphology with special reference to lepidopteran larvae, coleopteran adults; and honeybee; metamorphosis and moulting; different physiological systems; insect plant relationship; insect pests of agricultural and horticultural crops, and their stored / processed products, insect vectors of plant diseases – identification, biology, nature of damage, and their management tactics; and pests of household, medical and veterinary importance and their control; useful and beneficial insects like honeybee, lac insect, silkworm and pollinators; Nematode taxonomy, biology of important plant parasitic nematodes and their control; entomopathogenic nematodes, basic principles of insect and nematode pest management – cultural, biological, insecticidal, quarantine, and regulatory aspects; insecticide classification and insecticide resistance management; and insect protective transgenic crops.