

**Paper – IX : General Entomology**

**Unit I**

Taxonomy : Basics of insect classification – Classification of insects upto superfamilies – Key characteristics with common South Indian examples – origin and evolution of insects.

**Unit II**

Morphology : Head : Segmentation and sutures – Antenna : Types – Mouth parts; Thorax – wings – venation – legs – types; Spiracles – types – Appendages in Apterygotes – Genitalia.

**Unit III**

Physiology : Integumentary system – structure and chemistry – physiology of moulting. Structure and physiology of digestive system.

Respiration – aerial respiration – aquatic respiration – respiration in endoparasites.

Circulatory system – structure of heart, mechanism of haemolymph circulation – haemolymph and its composition – A study of haemocytes and their functions

**Unit IV**

Excretory system : Malpighian tubules and their functions – role of rectum in water and regulation

Nervous system : Structure – Neurotransmitters – Sensory receptors. Structure and function of compound eye, coeloconia, Johnston's organ, chordotonal organ and stridulatory organ.

Reproductive system : Male and female reproductive systems – types of ovaries – vitellogenesis- mating – oviposition – viviparity –accessory reproductive glands - their secretions and functions.

**Unit V**

Endocrine system – endocrine control of moulting and metamorphosis – role of hormones in male and female reproduction – neuroendocrine system of insects.

Ecology : Adaptations to environmental stress – Temperature – Photoperiodism – Hibernation – Aestivation – Diapause – Migration.

**Recommended Text Books :**

MANI, M.S., (1982) General Entomology, Oxford and IBH Publishing Co., New Delhi.

SNODGRASS, R.E., (1985) Principles of Insect Morphology, McGraw Hill and Co., New York.

WIGGLESWORTH, V.B., (1992) Physiology of Insects, IX Ed., Chapman and Hall, London.

**Reference Books :**

BORROR, D.H., and De LONG, (1964) An Introduction to the study of Insects, Holt Reinhart & Winston Inc., New York.

CHAPMAN, R.F., (1992) The Insects : Structure and Function, Hodder and Broughton Ltd., Kent, U.S.A.,

NAYAR, K.K., ANANTHAKRISHNAN, T.N., and DAVID., M. (1995). General and Applied Entomology, Tata McGraw Hill Pub. Co., Ltd., New York.

RICHARDS, O.W., and R.G.DAVIES (1983) IMMS' General Text Book of Entomology, X Ed., Vols. I and II, Chapman and Hall, New York.