

Syllabus for Research Entrance Test (RET)
Entomology
Paper I
(Research Methodology)

UNIT I: Research Methodology at a glance

Importance and scope of research in agricultural entomology in relation to development of agriculture, Fundamental and applied problems in entomology and their implications, steps involved in any research project, recording, transformation, tabulation, diagrammatic presentation of data in various types of research problems, literature collection, preparation of synopsis and scientific papers.

UNIT II: Toxicological & Physiological Research Methodology Scope of toxicology in agriculture, Research designs in field, storage and laboratory for estimation of toxicity of insecticides and other chemical agents used against insects, exercises on probit analysis, residue deposit per unit area, persistence, tolerance limits, half-life values, PT index, LC 50, Ld 50, LT 50 values, methods of determination of insecticidal residues, Determination of resistance to insecticides. Bio-chemistry and role of proteins, carbohydrates lipids, vitamins and amino acids in nutritional requirement using modern methods of analysis, preparation of synthetic diets of insects. Physiology of host selection in insects, Elementary knowledge of paper chromatography, TLC, GIC, and other modern analytical methods. Micro-techniques, Histology of different parts and organs. Determination of pH of different parts of alimentary canal.

UNIT III: Entomological Techniques

Techniques involved in collection, killing, preservation, pinning, setting, labelling, handling, rearing and storing of insects, Insectary and insect cages, Determination of temperature and humidity and other entomological techniques, preparation of specimen for transferring them for identification.

UNIT IV: IPM Package of Field Crops

Assessment of losses in fields and storages, computation and analysis of data. Economics of insect-pests control. Collection and identification of important crop pests and their natural enemies, field observations on damage caused by insect-pests, study of life history of insect-pests from cereal, fibre, oilseed, pulses and sugarcane crops.

UNIT V: IPM Package of Horticultural Crops

Collection and identification of important fruit and vegetable crop pests and their natural enemies, field observations on damage caused by insect-pests, study of life history of insect-pests of vegetables like tomato, chilli, cabbage, cauliflower, brinjal, okra, all gourds and fruits like mango, guava, banana, papaya, citrus and other important fruits of this region.

**SYLLABUS FOR RESEARCH ENTRANCE TEST (RET)
ENTOMOLOGY
PAPER - II
(SUBJECT CONTENT)**

Unit I

Insect Morphology, Anatomy and Physiology

1. Insects body wall, their structure and function.
2. Head, thorax, abdomen and their appendages.
3. Sense organs in insects.
4. Structure, modifications and physiology of different systems.

Unit II

Insect Taxonomy

1. Components of biological classification.
2. ICZN
3. Various orders and families of agriculturally important insects.
4. Entomological tools and techniques.

Unit III

Insecticide Toxicology

1. Classification of insecticides.
2. Mode of action of insecticides.
3. Joint action of Insecticides.
4. Mechanism of insecticide resistance in insects and their management .

Unit IV


Insect Ecology and Integrated Pest Management

1. Role of biotic and abiotic factors on insects growth and development.
2. Environmental resistance and diapause.
3. Principles and concepts of IPM.
4. Tools of integrated pest management.

Unit V

Economic Entomology

1. Major insect- pests of field, horticultural and plantation crops and their management.
2. Stored grain insect-pest and their management.
3. Beneficial insects.
4. Spraying and dusting equipments.


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