

B.Sc. AGRICULTURE (HONS.) Semester-II
Zoo. 103: Basic Zoology

Time: 3 Hours
Periods per week 2

Theory: 40
Internal Assessment: 10
Total: 50

Instructions for the Paper Setters:

1. Question paper should be set strictly according to the syllabus.
2. The language of questions should be straight & simple.
3. Not more than one question should be based on one topic.
4. The question paper should cover the whole syllabus and questions should be evenly distributed.
5. At least eight questions should be set, out of which the candidates should be required to attempt any five.

Theory

- Cell structure, cell division, biomolecules.
- Simple and compound tissues.
- Functional organization of various systems of a mammal.
- Gametogenesis and development of frog up to three germinal layers.
- Binomial nomenclature, classification and general survey of animal kingdom.
- Common ecto and endoparasites of man and domestic animals.

Practical

Time: 3 Hours
Periods per week 2

Practical: 20
Internal Assessment: 05
Total: 25

1. Study of cell structure and cell division.
2. Microscopic study of histological preparations of simple and compound tissues.
3. Study of anatomy of a mammal through models.
4. Slides of frog development.
5. General survey of animal kingdom up to classes.

As per UGC guidelines and instructions, the use of live materials is to be avoided and be replaced with models, simulated dissections and slides.

Ent. 204 Fundamentals of Insect Morphology and Systematics

Time: 3 Hours

Periods per week 4+3

Max. Marks: 75

Theory= 40

Practical = 20

Internal assessment= 10+5

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3. Not more than one question should be based on one topic.
4. The question paper should cover the whole syllabus and questions should be evenly distributed.
5. At least eight questions should be set, out of which the candidates should be required to attempt any five.

Theory

- Entomology- definition and its history.
- Factors for insect abundance.
- Integument, moulting, body regions and segmentation.
- Morphology and anatomy of an insect (Grasshopper/Blister beetle).
- Modification and function of mouth parts, antennae, legs and wings.
- Wing venation and wing coupling apparatus.
- Sense organs.
- Metamorphosis and diapause.
- Types of reproduction.
- Taxonomy- its importance, history, development and binomial nomenclature.
- Definitions of biotype, sub-species, species, genus, family and order.
- Classification of class Insecta upto orders, suborders and important families with special emphasis on distinguishing morphological characters.

Practical

- Collection and preservation of insects including immature stages.
- Morphology and anatomy of Grasshopper/Blister beetle.
- Different types of antennae, mouth parts, legs and wings.
- Wing venation and wing coupling apparatus.
- Types of larvae and pupae.
- Study of characters of orders - Odonata, Orthoptera, Dictyoptera, Isoptera, Thysanoptera, Hemiptera, Lepidoptera, Neuroptera, Coleoptera, Hymenoptera, Diptera and their families of agricultural importance.

B.Sc. AGRICULTURE (HONS.) Semester – IV
Ent. 205- Insect Ecology and Integrated Pest Management

Time: 3 Hours

Periods per week 4+3

Max. Marks: 75

Theory= 40

Practical = 20

Internal assessment= 10+5

Instructions for the paper setters:

1. Question paper should be set strictly according to the syllabus.
2. The language of questions should be straight & simple.
3. Not more than one question should be based on one topic.
4. The question paper should cover the whole syllabus and questions should be evenly distributed.
5. At least eight questions should be set, out of which the candidates should be required to attempt any five.

Theory

Insect Ecology- Introduction, environment and its components, effect of abiotic and biotic factors. Biotic potential, environmental resistance and causes for pest outbreaks in agroecosystem.

Pest surveillance and pest forecasting. Categories of pests.

Host plant resistance, cultural, mechanical, physical, legislative and biological control.

Chemical control- importance, hazards and limitations. IPM its tools and limitations.

Classification, toxicity and formulations of insecticides. Study of important insecticides- botanical, organophosphates, carbamates, synthetic pyrethroids.

Novel insecticides, pheromones, nicotiny, chitin synthesis inhibitors, phenyl pyrazoles, avermectins, macrocyclic lactones, oxadiazines, thiourea derivatives, pyridine azomethines, pyroles, etc., rodenticides, acaricides and fumigants.

Recent methods of pest control. Insecticides Act 1968. Symptoms of poisoning, first aid and antidotes.

Beneficial insects. Important species of pollinators, weed killers and scavengers, their importance.

Non insect pests- mites, rodents and birds.

Practical

Study of terrestrial and pond ecosystems, behaviour, orientation, distribution patterns of insects and sampling techniques for the estimation of insect population and damage.

Pest surveillance through light and pheromone traps.

Practicable IPM practices.

Insecticides and their formulations, calculation of doses of insecticides.

Compatibility of pesticides.

Phytotoxicity of insecticides.

IPM case studies.

Identification of common phytophagous mites, rodent, bird pests and their damage.

Other beneficial insects – pollinators, weed killers and scavengers.

B.Sc. AGRICULTURE (HONS.) Semester – V
Ent. 302 Insect Pests of Crops and Stored Grains

Time: 3 Hours
Theory= 40

Max. Marks: 75
Practical = 20
Internal Assessment 10+5=15
Periods per week 4+3

Instructions for the paper setters

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2. The language of questions should be straight & simple.
3. Not more than one question should be based on one topic.
4. The question paper should cover the whole syllabus and questions should be evenly distributed.
5. At least eight questions should be set, out of which the candidates should be required to attempt any five.

Theory

Distribution, biology, symptoms of damage and management strategies of insect pests of rice, sorghum, maize, cotton, groundnut, sugarcane, ragi (*Eleusine coracana*), wheat, sunhemp, pulses, castor, safflower, sunflower, mustard, brinjal, bhindi, tomato, cruciferous and cucurbitaceous vegetables, potato, sweet potato, chillies, mango, citrus, grapevine, cashew, banana, pomegranate, guava, sapota, ber, apple, coconut, tobacco, coffee, tea, turmeric, onion, coriander, garlic, ginger and ornamental plants

Stored grain insect pests-their biology damage and management.

Practical

Identification of insect pests, their damage symptoms and management of rice, sorghum, maize, wheat, sugarcane, cotton, pulses, solanaceous, malvaceous, cruciferous and cucurbitaceous vegetables, chilli, mango, citrus, sapota and stored grains.