**Department of Zoology**

**Lesson plan (2022-23) (Dr. Neeru)**

**B.Sc. Semester – IV (Theory)**

Paper II: Mammalian Physiology-II

**February:**

**Circulation:**

* + - Origin, conduction and regulation of heart beat
    - Cardiac cycle, electrocardiogram
    - Cardiac output, fluid pressure and flow pressure in closed and open circulatory system
    - Composition and functions of blood and lymph
    - Mechanism of coagulation of blood, coagulation factors, anticoagulants and haemopoiesis

**March:**

**Respiration:**

* Exchange of respiratory gases
* Transport of gases
* Lung air volumes
* Oxygen dissociation curve of haemoglobin, Bohr’s effect
* Hamburger’s phenomenon (Chloride Shift)
* Regulation of respiration

**Excretion:**

* Ammonotelic, ureotelic and uricotelic excretion
* Ornithine Cycle in liver
* Urine formation and counter current mechanism of urine concentration
* Osmoregulation
* Micturition

**April:**

**Neural Integration:**

* Nature, origin and propagation of nerve impulse (in medullated and non-medullated nerve fibres)
* Conduction of nerve impulse across synapse

**Chemical integration of endocrinology:**

* Structure and mechanism of hormone action
* Physiology of endocrine glands (hypothalamus, pituitary, thyroid, parathyroid, adrenal, pancreas and gonads)

**May:**

**Reproduction:**

* Spermatogenesis
* Capacitation of spermatozoa
* Ovulation, formation of corpus luteum
* Oestrous-anoestrous cycles
* Menstrual cycle in human
* Fertilization, implantation and gestation

**(Dr. Neeru)**

Department of Zoology

**Lesson plan (2022-23)**

**Name of the Assistant/ Associate Professor:** Dr. Neeru

**Class:** B. Sc. III (Medical) VI sem.

**Subject**: Zoology (Paper I & Paper II)

**February:**

**Introduction to world fisheries**: Production, utilization and demand.

**Fresh Water fishes of India:** River system, reservoir, pond, tank fisheries; captive and culture fisheries, cold water fisheries.

Study of important insect pests of crops and vegetables:

**Sugercane:**

(a) Sugercane leaf-hopper *(Pyrilla perpusilla)*

(b) Sugercane Whitefly *(Aleurolobus barodensis)*

(c) Sugercane top borer *(Sciropophaga nivella)*

(d) Sugercane root borer *(Emmalocera depresella)*

(e) Gurdaspur borer *(Bissetia steniellus)*

With their systematic position, habits and nature of damage cause. Life cycle and control of *Pyrilla perpusilla* only.

**March:**

Fishing crafts and gears.

Fin fishes, Crustaceans, Molluscs and their culture.

Study of important insect pests of crops and vegetables:

**Cotton:**

(a) Pink bollworm (*Pestinophora gossypfolla)*

(b) Red cotton bug *(Dysdercus Cingulatus)*

(c) Cotton grey weevil (*Myllocerus undecimpustulatus)*

(d) Cotton Jassid (*Amrasca devastans)*

With their systematic position, habits and nature of damage caused. Life cycle and control of *Pectinophora gossypiella.*

**Wheat** **Pest:** Wheat stem borer (*Sesamia inferens)* with its systematics position, habits, nature of damage

caused. Life cycle and control.

**April:**

**Seed production**: Natural seed resources – its assessment, collection, Hatchery production

**Nutrition**: Sources of food (Natural, Artificial) and feed composition (Calorie andChemical ingredients).

**Field Culture:** Ponds-running water, recycled water, cage, culture; poly culture.

**Paddy Pests:**

a) Gundhi bug (*Leptocorisa acuta)*

(b) Rice grasshopper *(Hieroglyphus banian)*

(c) Rice stem borer *(Scirpophaga incertullus)*

(d) Rice Hispa *(Diceladispa armigera)*

With their systematic position, habits and nature of damage caused. Life cycle and control of *Loptocorisa acuta.*

**Vegetables Pests:**

(a) *Raphidopalpa faveicollis* – The Red pumpkin beetle.

(b) *Dacus cucurbitas* – The pumpkin fruit fly.

(c) *Tetranychus tecarius* – The vegetable mite.

(d) *Epilachna –* The Hadda beetle

Their systematics position, habits and nature of damage caused. Life cycle and control of *Aulacophora faveicollis.*

**May:**

**Culture technology:** Biotechnology, gene manipulation and cryopreservation of gametes.

**Stored grains Pests:**

(a) Pulse beetle *(Callosobruchus maculatus)*

(b) Rice weevil *(Sitophilus oryzae)*

(c) Wheat weevil *(Trogoderma granarium)*

(d) Rust Red Flour beetles *(Tribolium castaneum)*

(e) Lesser grain borer *(Rhizopertha dominica)*

(f) Grain & Flour moth *(Sitotroga cerealella)*

Their systematic position, habits and nature of damage caused. Life cycle and control of *Trogoderma granarium*.

**Insect control:** Biological control, its history, requirement and precautions and

feasibility of biological agents for control.

**Chemical control:** History, Categories of pesticides. Important pesticides from each

category to pests against which they can be used. Insect repellants and attractants.

Integrated pest management.

Important bird and rodent pests of agriculture & their management.