

**THIRD SEMESTER THEORY**  
**Z.3 ECONOMIC ZOOLOGY & HISTOLOGY**

Code : **Z-3**

Univ Code :

Contact Hours :64

Work load : 4 hours per week

Credit Points :

Evaluation: Continuous Internal Assessment - 30 marks  
Semester and Examination - 70 marks

**A. POULTRY**

-10hrs.

Aim and scope of poultry; poultry farm management; poultry breeds in India; rearing of house equipments ;poultry feed & its composition; broiler& layers ;rearing ; nutritive value of egg and meat; a note on diseases-viral,bacteria, protozoan , helminthes ,genetic,ecto-parasites, nutritional deficiency diseases of poultry birds, symptoms, remedies and their control.

**B.DAIRY FARMING**

-8hrs.

Importance ; Scope and management of farm animals ; breeds of cows and buffaloes ; nutrition requirements; housing and hygiene of dairy animals; milk and milk byproducts; processing, preservation and marketing of milk; breeding techniques; artificial insemination; breeding programs to improve local breeds.

**C.SERICULTURE – AGROBASED INDUSTRY**

-10hrs. Components of sericulture :

Moriculture – different species of mulberry; cultivation methods ;silkworm rearing; life cycle & morphology of Bombyx mori; environmental conditions needed for rearing; modern rearing house; rearing equipments; chawki worm & adult worm rearing methods; non mulberry silkworms; pest & predators; a note on silkworm diseases – Pebrine, muscardine,Flacherie & Glacherie. Types of silk ,importance of sericulture & byproducts of sericulture.

**D. AQUACULTURE-**

**10hrs.**

Principle ; scope; techniques and importance of culturing, economically important aquatic organism; brief account of culturing of Indian major exotics corps & fresh water prawn ;induced breeding of major carps and seed fish, pearl-culture (brief note) composite fish culture (polyculture)

**E.APICULTURE**

-7hrs Honeybee morphology; structural

adaptations of mouth parts, honey sac; wax glands and sting apparatus ; social life ; different species and races,management of bee keeping(modern methods) ; economic importance of honey, wax, pollen Venom & bee pollination; a note on production of honey ; its chemical composition & honeybee disease.

**REFERENCES**

1. Jhingran V . G . Fish and fisheries of India. Hindustan Publishing corporation, New Delhi.
2. Kovaleve,P.A,Silkworm breeding stocks, central silk board, marine drive. Bombay .
3. Roger ,A.Morse. The ABC and XYZ of bee culture. A.I. Root and Medina. Ohio 44256.
4. Harbnas Singh and Earl.N. Moore, Livestock and poultry production. Prentice Hall of India, New Delhi.
5. Milk Dick, Aquarium Fish, D. K. Publishing book, New York 10016.
6. Bal, D.V & K.V. Rao, marine fisheries Tata McGraw Hill publishing co.Ltd. New Delhi -110 051.

**Histology -12hrs**

**Study of Histological structure and functions of following Mammalian organs.**

- Tongue (C.S.) with reference to mucosa papillae and taste bud
- Alimentary canal: Basic histological organization with reference to: Stomach(T.S), small intestine(T.S).
- Glands associated with digestive system: Liver(C.S) and Pancreas (C.S) including both exocrine and endocrine component.
- Kidney : structure of nephron T.S of kidney passing through cortex and medulla
- Reproductive organs : A) Testis (T.S) with reference to seminiferous tubules and cell of Leydig. B)Ovary (C.S) –primary, secondary and matured (Graffian) follicle corpus luteum and corpus albicans.

**Histology of endocrine glands :** 1)Pituitary. 2) Thyroid.  
3) Adrenal.

**Reference books**

1. Bailey Text book of Histology , 1971, 16<sup>th</sup> edn. Wilfred M.Copenhaver Richard P. Bung & Mary bartell Bunge, The William & wilkings company Baltimore.
2. Histology 979 ,8<sup>th</sup> edn. Arthur W.Ham. David H . Cormark. J.B.Lippincot. Co. Philadelphia.

**PRACTICAL BASED ON PAPER Z-3:**

**III: ECONOMIC ZOOLOGY**

1. Food fishes: Catla, Miglala, Anabas, Mackerel, Sardine, Mugil, Rohu, Channa, Shark.
2. Study of mouth parts and sting apparatus of honey bee, nature and use of bee hive, bee wax and honey bee plants.
3. Life cycle of bombyx mori including externals, mulberry and non-mulberry, cocoons.
4. Byproducts' of fisheries, poultry dairy and sericulture-fish oil, milk powder, egg powder, fowl excreta, dry cocoons and silkworm and excreta.
5. Study of poultry breeds (indigenous and exotic-two example for each)
  - a) Broilers – 2.
  - b) Layers – 2.
6. Study of milching breeds (indigenous and exotic-two example for each)
7. Study of MOET – Explanation with chart, (IVF & ET charts).
8. Study of Pearls.
9. Visit to Poultry farm.
10. Visit to Dairy farm.
11. Visit to Veterinary Hospital.
12. Visit to Silk Rearing Centre.
13. Visit to Aquaculture Farm.

**NOTE:** A brief report of any two above mentioned farms and study tour is COMPULSORY.

PRACTICAL-ZP.3  
BASED ON PAPER Z-3

**Economic zoology and Histology**

1. Foodfishes: Catla, Miglala, Anabas, Mackerel, Sardine, Mugil, Rohu, Channa, Shark, .
2. Study of mouth parts and sting apparatus of honey bee, nature and use of bee hive, bee wax and honey.
3. Life cycle of bombyx mori including externals, Mulberry and non-mulberry, Cocoons.
4. Biproducts of fisheries, poultry dairy and sericulture - fish oil, milk powder, egg powder, fowl excreta, dry cocoons and silkworm and excreta.
5. Study of poultry breeds (Indigenous and Exotic - two examples for each)
  - a) Broilers - 2, b) Layers - 2.
6. Study of Milching breeds (Indigenous and Exotic - two examples each)
7. Study of MOET - Explanation with chart (IVF & ET charts)
8. Study of Pearls.
9. Visit to poultry farm.
10. Visit to dairy farm.
11. Visit to veterinary hospital.
- 12, Visit to silk rearing centre.

13. Visit to aquaculture farm.

NOTE: A brief report of any two above mentioned farms and study tour is COMPULSORY.

### Histology

1.Procedure for the preparation of staining of paraffin section.

2.Study of cross sections of organs included in theory from permanent slides

The following Breeds are recommended for Theory & Lab study

#### 1.PSCICULTURE

A.Carps :Catla,Labeo,Cirrihinus,Labeo Calbasu

B.cat fishes: Wallago Atta,Mystus Seenghala,Clarsius Betrachus,Heteropneustes Fossilis.

#### 2.DIARY

Sahiwal,Redsindi,GIR,Deoni – MILCH BREEDS

B.Draught breeds

Hallikeri,Amruthmahal

C.General utility breeds

Hariana,Ongole

#### EXOTIC BREEDS

Holstein-Friesion,Jersey,Brown-swiss,Ayrshire

Poultry – Indigenous

Aseel,Chittagong,Gallusgallus,Red jungle fowl

Exotic Breeds

Giriraj,Leghorn,Rhode-Islandred,Rhode-Island White,

Plymouth-rock,Newhampshire

### FORMAT OF QUESTION PAPER FOR PRACTICAL:ZP-3 ECONOMIC ZOOLOGY AND HISTOLOGY

Max marks=40

Time - 3hrs

Q1. Identification and comment on A B & C

(Poultry,fisheries and dairy)

3X3=09

Q2.Identification and comment on different products of (poultry,fisheries,sericulture and dairy apiculture) 5X2=10

Q3. Identification of mouth parts / sting of Honey bee 3X1=03

Q4. Staining & identification of given paraffin section with labeled diagram

Q5. Histology-identification

1.Identify & describe

2. Identify & describe

3. Identify & sketch &label

3X2=06

Q6. Record Book

05

#### **3 semester Theory Question paper format VSKU**

Title of the paper :-ECONOMIC ZOOLOGY & HISTOLOGY

3 hrs

Section A

Max marks:80

Q1.Answer any 5 of the following

question no (1-7)

5X2=10

[four questions from Economic zoology and 3 questions from histology]

#### Section B

Q2 A) Answer any five of the following

question no( 8-13)

5\*5=25

(6 question s from Economic zoology)

B)Answer any one of the following

question no( 14,15)

1\*5=5

(2 questions from Histology)

#### Section C

Q 3 A)Answer any 3 of the following

question no(16-19)

3X10=30

(4 questions from Econoic zoology)