

**M.Sc. Zoology (IV–Semester)**  
**2013-14**  
**Paper-1 (Compulsory)**  
**ANIMAL BEHAVIOUR AND NEUROPHYSIOLOGY**

**Max. Marks: 35**

**Unit-1**

Introduction:

1. Ethology as a branch of biology.
2. Animal psychology, classification of behavioral patterns, analysis of behavior (ethogram)
3. Reflexes and complex behaviour.
4. Perception of the environment: mechanical, electrical, chemical, olfactory, auditory and visual.
5. Evolution and ultimate causation: Inheritance behaviour and relationships.

**Unit-2**

1. Neural and hormonal control of behaviour.
2. Genetic and environmental components in the development of behaviour.
3. Motivation: Drive, timing and interaction of drives, physiological basis of motivation, hormones and motivation, aggregation.
4. Communication: Chemical, visual, light and audio, evolution of language (primates).

**Unit-3**

1. Ecological aspects of behaviour: Habitat selection, food selection, optimal foraging theory, anti-predator defenses, aggression, homing territoriality, dispersal, host parasite relations.
2. Biological rhythms: Circadian and circannual rhythms, orientation & navigation, migration of fishes, turtles and birds.
3. Learning and memory: Conditioning, habituation, insight learning, association learning and reasoning.

## **Unit-4**

1. Reproductive behaviour. Evolution of sex and reproductive strategies, mating systems, courtship, sexual selection, parental care.
2. Social behavior, aggregations, schooling in fishes, flocking in birds, herding in mammals, group selection, kin selection, altruism, reciprocal altruism, inclusive fitness, social organization in insects and primates.

## **Unit-5**

### Human Ethology

1. Ethological concept and human behaviour.
2. Concept of Sign Stimuli
3. Concept of imprinting
4. Kinship & Human social system
5. Human being & territorial behaviour.
6. Human aggressive behavior and human social behavior.

### **Suggested Reading:**

1. Eibl-Eibesfeldt, I. Ethology. The Biology of Behavior. Holt, Rinehart & Winston, New York.
2. Gould, J.L. The mechanism & Evaluation of behavior.
3. Krebs, J.R. and N.B. Davies: Behavioural Ecology. Blackwell Oxford, U.K.
4. Hinde, R.A. Animal Behaviour: A synthesis of Ethology and Comparative Psychology. McGraw Hill, New York.
5. Alcock, J. Animal Behaviour: An Evolutionary approach. Sinauer Assoc. Sunderland, Massachusetts, USA.
6. Bradbury, J.W. and S.L. Vehrencamp. Principles of Animal Communication. Sinauer Assoc. Sunderland, Massachusetts, USA.
7. Reena Mathur, Animal Behaviour.
8. David McFarland, Animal behavior.