

MODULE-1

PHYSIOLOGY OF MUSCLE CONTRACTION

8hrs

- A. General structure and types of muscles.
- B. Ultra structure of skeletal muscle.
- C. Sliding filament mechanism of muscle contraction.
- D. Chemical changes during muscle contraction –role of calcium, ATP utilization and replenishment.

MODULE-2

PHYSIOLOGY OF NERVE IMPULSE

9hrs

- A. Structure of nerve cell.
- B. Nature of nerve impulse- resting potential and action potential. Properties of nerve impulse- threshold value, refractory period, all or none response.
- C. Conduction of nerve impulse along an axon-local circuit theory and salutatory conduction theory.
- D. Structure of synapse, mechanism of synaptic transmission- electrical and chemical transmissions.

MODULE-3

PHYSIOLOGY OF HOMEOSTASIS

8hrs

- A. Concept of homeostasis and its basic working mechanism.
- B. Mechanism of homeostasis-giving three illustrations Viz..., Hormonal control of glucose level, water and ionic regulation by fresh water and marine animals and temperature regulation in man.

MODULE-4

GENETICS

8hrs

- A. Mendel's laws-Law of segregation and independent assortment.
- B. Identification of DNA as the genetic material-Griffith's experiment and Hershey chase experiment.
- C. Human karyotyping, Barr bodies and Lyon hypothesis ,Amniocentesis
- D. Chromosomal disorders - autosomal and sex chromosomes.

MODULE-5

ORGANIC EVOLUTION

12hrs

- A. Genetic basis of evolution, gene pool and gene frequencies, Hardy-Weinberg's law, force of destabilization, natural selection, genetic drift, mutation, isolation and migration.
- B. Speciation-Allopatric and Sympatric.

REFERENCE BOOKS

1. Essentials Of animal physiology by S.C.Rastogi.
2. Animal physiology by H.C.Nigam.
3. Animal physiology- Agarwal, R.A.Srivastava, kaushal, anil and kumar.
4. Animal physiology and biochemistry by Dr .B.Annadurai .
5. Biology by Campbell & Reece.
6. Principles of animal physiology by Christopher D.moyes , patricia M Schulte.
7. Genetics, Vol-I. By C.B. Powar., Himalaya publishing house pvt. L. td.

8. Genetics by p.k. Gupta.
9. Cellbiology, Genetics, Evolution and Ecology' by P.S. Varma and V.K. Agarwal; S.Chand, and Company.
10. 'Principles of genetics' by H. Robert & Tamasin.
11. 'Genetics' by P.S Verma & V.K. Agarwal.
12. Organic evolution' by M.P. Arora & chandrakanta.
13. 'Organic evolution' by N.Arumugam.