ZOH451: COMPARATIVE ANIMAL PHYSIOLOGY

Teaching Hours 10/unit

COURSE OUTCOME

1. The teaching session is involved in making students to understand different physiological systems and their functional role in human and other animals.
2. Students are also taught about various disorders due to functional and cellular defect in different physiological pathways.
3. Importance of hormones and their functions.
4. The reproductive physiology of both invertebrates and vertebrates are discussed.
5. The complete gastrointestinal physiology is dealt in great details to make students aware of molecular and physiological aspects of gut functions and its abnormality.
6. The studies on respiratory, reproductive and osmoregulation physiology are discussed.

UNITI

Digestion - Digestive Enzymes
Digestion and absorption of carbohydrates, proteins and lipids
Regulatory mechanisms of digestion
Gastro-intestinal motility
Gastro-intestinal disorders

UNITII

Respiration- Comparative study of aquatic and terrestrial respiration
Respiration in insects and birds
Transport of O_2 and CO_2
Role of Blood as a buffer
Haemodynamics

UNITIII

Osmoregulation- Ionic and water balance in tissues
Osmoregulation in aquatic, amphibious and terrestrial animals
Patterns of N2 excretion
Urine formation in a nephron
Regulation of renal function

UNITIV

Hormones - Principles of Endocrinology
Mechanisms of water- and lipid soluble hormone action
Hormonal regulation of fuel metabolism
Estrous cycle and its hormonal basis
Endocrine regulation of insect metamorphosis

UNITV

Reproductive Physiology-

Spermatogenesis and oogenesis in mammals

Molecular mechanisms of fertilization in mammals.

Oral contraceptives and their hormonal basis.

Insect reproductive systems

Hormonal regulation of reproduction in insects

REFERENCES

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4. Ganong, U.F. (1989) Review of Medical Physiology, Lange, California.
5. Guyton, A.C. (1991) Text Book of Medical Physiology, 8edition. Saunders Co., Jovanovich
6. Jensen, D. (1976) The Principles of Physiology, Appleton Century Crafts, New York.
7. Louco, G.N. (1993) Physiological Animal Ecology, Longman Scientific and Technical, Essex.
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9. Oser, B.L. (1976) Hawkins Physiological Chemistry 14th edition. (Indian Edition) Tata McGraw-Hill Pub.Co, New Delhi.
10. Paganelli, C.V. and Farhi L.E. (1989) Physiological Function in Special Environments, Springer Verlag, New York.
11. Schmidt Nilsen K. (1994) Animal Physiology, 4th edition. Cambridge University Press, New York.
12. Schmidt-Nielsen, K. (1995) Animal Physiology, Adaptation and Environment. Cambridge University Press.
13. Shepherd, G.M. (1994) Neurobiology, 3rd edition, Oxford University Press, USA.
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