

SARDAR PATEL UNIVERSITY
Programme: MSC (Zoology)
Semester: IV
Syllabus with effect from: June 2011

Paper Code: PS04CZOO01	Total Credits: 4
Title Of Paper: Molecular and Applied Endocrinology	

Unit	Description in detail	Weightage (%)
1	Introduction: A brief history of discovery of hormones. An overview of vertebrate endocrine system. Structural features and hormones of endocrine glands- hypothalamus, pituitary, pineal, thyroid, parathyroids, GI tract, pancreatic islets, adrenals and gonads.	
2	Endocrine methodologies: Ablation and replacement, bioassays, immunoassays, Immunocytochemistry, autoradiography, electrophysiological and Pharmacological methods, hormone-receptor interactions, cloning techniques.	
3	General classes of hormones: peptide, thyroid, steroid, neuro-transmitters, neuropeptides, chalone, peptide-growth stimulating factors, eicosanoids and pheromones Hormones of endocrine glands: synthesis and control of synthesis, storage, metabolism and functions. Endocrinology of pregnancy, parturition and lactation.	
4	Mechanisms of hormone action: Receptors and types- membrane receptors, nuclear receptors; receptor regulation and signal transduction, second messengers, permissive actions of hormones and termination of hormone action.	
5	Pathophysiology of hypothalamic, pituitary, pineal, thyroid, parathyroid, GI tract, pancreatic islets, adrenal and gonadal hormones. Imaging and nuclear medicine in endocrine disease and hormone-replacement therapies.	

Basic Text & Reference Books:

- Molecular Endocrinology: Franklyn F. Bolander. Elsevier- Academic Press.
- Molecular Cell Biology: J. Darnell, H. Lodish and D. Baltimore Scientific American Book, Inc. USA
- Vertebrate Endocrinology: Norris, D. O. Academic Press, New York
- Endocrinology, Vol. I, II, III: D Groot. L. J. (ed.), W. B. Saunder Philadelphia
- Biochemical Actions of Hormones: Litwack, G. Academic Press. Principles of Anatomy and Physiology: Tortora, G. J. John Wiley & Sons, Inc.
- Essential Endocrinology: Brook, C.G.D. and Marshall, N.J. Blackwell Publishing.

