

ST.JOSEPH'S COLLEGE FOR WOMEN(A),VISAKHAPATNAM.

ZOOLOGY SYLLABUS FOR III SEMESTER

ZOOLOGY - PAPER - III

CYTOLOGY&PHYSIOLOGY

OBJECTIVES:

1. To gain knowledge about the cell organelle and their role in life processes.
2. To acquire knowledge about the basic physiological processes.
3. **TO UNDERSTAND THE BASIC LABORATORY TECHNIQUES IN PHYSIOLOGY.**

Max. Marks:100

Unit - I

1. Cytology

- 1 Definition, history, prokaryotic and eukaryotic cells, virus, viroids, mycoplasma
- 2 Electron microscopic structure of eukaryotic cell.
- 3 Plasma membrane –Different models of plasma membrane.

Unit – II

2. Cell organelle

- 1 Structure and functions of Endoplasmic Reticulum
- 2 Structure and functions of Golgi apparatus
- 3 Structure and functions of Lysosomes
- 4 Structure and functions of Ribosomes
- 5 Structure and functions of Mitochondria
- 6 Nucleus
7. **Chromatin - Structure and significance**, Chromosomes - Structure, types, functions

Unit - III

Physiology

- 1 .Definition of digestion & Types of digestion-Extracellular, intracellular &cellulose digestion. Organs of digestion, physiology of digestion in different regions,Absorption of digested products ,GastroIntestinalHormones.
2. Respiration - Pulmonary ventilation, transport of oxygen and carbon dioxide. Types of respiration –external and internal. Properties and functions of Respiratory pigments. Mechanism of respiration in mammals. Chloride shift, Bohr Effect, and oxygen dissociation curve.
3. Circulation - Structure and functioning of heart, Cardiac cycle. Types of heart ,coagulation of blood.

Unit - IV

Muscle contraction - Ultra structure of muscle fiber, molecular and chemical basis of muscle contraction(Sliding filament mechanism of muscle contraction .Role of calcium, ATP utilization and its replenishment).

Structure of neuron, Functional properties of neuron. Nerve impulse transmission – Resting membrane potential, origin and propagation of action potentials along myelinated and non-myelinated nerve fibers. Synapse, Synaptic transmission.

UNIT –V

Excretion - Structure of nephron, urine formation, counter current mechanism.

Endocrine glands - Structure, secretions and the functions (of hormones) of pituitary, thyroid, parathyroid, adrenal glands, pancreas, thymus, pineal body, male and female sex hormones.

Hormonal control of reproduction in a mammal: Estrous and menstrual cycle.

TEXT BOOKS:

1. A text Book of Animal Physiology with related Biochemistry by A.K.Berry, Dr. As.Kapoor, Dr.R.Nagabhusanam. Emkay Publications, Delhi
2. A Text Book of Animal Physiology and Ecology by P.S.Verma, B.S.Tyagi, V.K.Agarwal, S.Chand and Company Ltd. New Delhi.
3. Animal Behaviour by Reema Mathur, Rastogi and Company, Meerut.
4. A text book of Animal Behaviour by Harjindra Singh, Anmol Publications Pvt. Ltd., New Delhi.
5. Essentials of Animal Physiology by Rastogi.

Reference: books:

1. Living Body – a text book in Human Physiology by Charles Herbert Best, Norman Burke Taylor, Asia Publishing House, New Delhi.
2. Animal Physiology by Goel and Sastry, Rastogi Publications, Meerut.
3. Animal Behaviour by Manju Yadav, Ram Nath Kedar Nath, Meerut.
4. Human Physiology by Chatterjee. “Cell Biology, Genetics, Molecular Biology, Evolution & Ecology” by P.S.Verma & A.K.Agarwal – S.Chand & company L.t.d, New Delhi.
5. “Cell Biology, Genetics, Molecular Biology, Evolution & ecology” by P.S.Verma & A.K.Agarwal – S.Chand & company L.t.d, New Delhi.