

BACHELORS WITH ZOOLOGY AS MAJOR

4th Semester

ZOL422J1: ZOOLOGY: COMPARATIVE PHYSIOLOGY OF VERTEBRATES

Credits: Theory=3, Practical=1

Course objective: This course is designed to give a learner, knowledge about the functions of different organ systems so as to lay a strong foundation in understanding their life-process

Learning outcome: After the completion of this course, a student will be able to: understand the working of different organ systems and their defects / disorders

Theory: (3 Credits)

Unit I: Physiology of Digestion & Excretion

- 1.1. Physiology of gastrointestinal tract and its associated glands; mechanical & chemical digestion
- 1.2. Absorptions of food; neuro-endocrine control on digestion
- 1.3. Nature of excretory wastes; osmoregulation
- 1.4. Mechanism of urine formation and its regulation; urea cycle

Unit II: Physiology of Circulation & Respiration

- 2.1. Physiology of blood circulation; cardiac cycle; heart rate, cardiac output and its regulation
- 2.2. Physiology of blood and lymph; coagulation of blood;
- 2.3. Mechanism of respiration; respiratory volumes and capacities; respiratory pigments
- 2.4. Transport of respiratory gases, oxygen dissociation curve; regulation of respiration

Unit III: Physiology of life Controlling & Coordinating Systems

- 3.1. Conduction of nerve impulse; reflex action & its types; physiology of vision & hearing
- 3.2. Hormones- nature, functions, mode of action & regulation; hormonal disorders
- 3.3. Physiology of muscle contraction
- 3.4. Physiology of male & female reproduction; reproductive cycle in female primates with regulation

Practical's: (1Credit)

List of Practical's:

1. Demonstration of enzyme action on starch
2. Preparation of blood smears
3. Determination of TLC & DLC, Total Erythrocyte Count (TEC) & ESR of human blood
4. Estimation of haemoglobin, Blood bleeding & clotting time; measurement of blood pressure
5. Preparation of temporary mounts: squamous epithelium and nerve cells

Suggested books:

1. Chordate Zoology E. L. Jordan P. S. Verm. S. Chand and company, New Delhi
2. Life of Vertebrates J. Z. Young New York Oxford University Press.
3. Text Book of Zoology Vol-11 Parker and Haswell AZTBS Publishers New Delhi
4. The Vertebrate Body Romer and Parso-Saunders Company
5. Chordate Zoology P S Dhami J K OHowu / Pradeep Publications, Jalandhar
6. Modern Text Book of Zoology (Vertebrates) R L Kotpal Rastogi Publications
7. Text Book of medical physiology by A.C. Guyton (2001)
8. Tortora, G.J. & Grabowski, S. (2006). Principles of Anatomy & Physiology, Wiley& sons
9. Practical Zoology: Vertebrate (English, Rastogi Publications, S. S. Lal)
10. Manual of practical Zoology Chordates P S Verma S. Chand and Company Ltd.