Paper – II: Introductory Veterinary Physiology and Biochemistry

Semester I

Name of the Course: Introductory Veterinary Physiology and Biochemistry -I
Course No. AHD-121; Cr. Hrs. 3 (2+1)

Theory

1. General Physiology and Biochemistry of muscles i.e. smooth, cardiac, voluntary striated muscles.
2. General Physiology and Biochemistry of body fluids: Formation of blood cells, haemopoiesis, plasma, serum, blood pH, blood clot formation, various types of blood cells, lymph, cerebrospinal fluid, synovial fluid, serum, macrophages and immunity.
3. General Physiology and Biochemistry of digestive system – Chemical structure of food viz. carbohydrate, fat, protein, minerals, vitamins, biochemical agents etc. Prehension, mastication, swallowing, gastric movements, physiology of small and large intestine, digestion in ruminants and non-ruminants and their comparative study, various enzymes used during digestion, absorption of feed ingredients, metabolism of protein, carbohydrate and fat. Digestive glands e.g. salivary glands, gall bladder, pancreas and their functions.
4. General Physiology and Biochemistry of respiratory system – Mechanism of respiration, respiratory action, dead space, artificial respiration, exchange of gases etc

Practical

1. Haematology laboratory : an introduction
2. Laboratory glass ware, equipments, microscope etc. : Basic knowledge
3. Collection of blood samples from various animals and birds
4. Anticoagulants
5. Separation of serum and plasma
6. Preservation of serum and plasma
7. Introductory study of blood cells
8. An Introduction to basic techniques : Enumeration of erythrocytes and leucocytes, Determination of PCV, ESR, Differential leukocyte count (DLC), Haemoglobin.
9. Study of digestive system of various animals using charts and models
10. Demonstration of collection of rumen liquor
11. Study of respiratory system of various animals using charts and models
12. Study of various types of muscles using chart and models

Semester II

Name of the Course: Introductory Veterinary Physiology and Biochemistry -II
Course No. AHD-122; Cr. Hrs. 3 (2+1)

Theory

1. General Physiology and Biochemistry of circulatory system- Cardiac cycle, system of heart, nervous control of blood flow, shock (blood volume and pressure), Venus and lymphatic return, theory of vaccination and immunity in animals.
2. General Physiology and Biochemistry of urinary system- Physiology of kidney and nephrone.
3. General Physiology and Biochemistry of female genital system- Puberty, oogenesis ovulation, formation of corpus luteum, estrous cycle, hormones of female reproduction system, pregnancy and parturition,
4. General Physiology and Biochemistry of male reproduction system – Erection, ejaculation, hormones of male reproduction system, factors affecting working of testis, sex determination, spermatogenesis, spermatozoa, working of accessory glands
5. General Physiology and Biochemistry of milk letdown - Structure of udder, milk secretion, galactopoesis, letdown of milk, formation of colostrum, milk fat and milk protein, agalactia.

Practical

1. Study of circulatory system of various animals using charts and models
2. Study of cardiac cycle using charts
3. Study of urinary system
4. Study of kidney using charts and models
5. Study of male reproductive system using charts and models
6. An introduction to semen evaluation: Assessment of motility of spermatozoa, total spermatozoa count and Live and dead spermatozoa count
7. Study of female reproductive system using charts
8. Behavioural signs of oestrus in different species
9. Study of gestation length of various animals
10. Study of functional morphology of udder
11. Demonstration of milk let down by using model
12. Basic knowledge of hormones for pregnancy diagnosis in animals