

**DEPARTMENT OF VETERINARY PHYSIOLOGY and BIOCHEMISTRY
SHOURABH COLLEGE OF VETERINARY SCIENCE**

Kheda, Hindaun City, Rajasthan

TENTATIVE LECTURE SCHEDULE – THEORY AND PRACTICAL

First Professional B.V.Sc. & A.H.

VETERINARY PHYSIOLOGY

Credit Hrs. (4+1)

w.e.f. 01/12/2025

Theory

Lecture Duration: One hour

Name of Teachers: Dr. Nalini Kataria, Dr. Ankita Anil Kiledar, Dr. Saurabh Singh Singhal, Dr. Pankaj Kumar

UNIT -1 (Blood, Cardiovascular, Nervous and Muscular Systems)

| S. No. | Date | Topics |
|---------------|-------------|---|
| 1. | 03.12.2025 | Orientation programme |
| 2. | 04.12.2025 | Introduction to Blood; Properties of blood as a body fluid. metabolism of R.B.C |
| 3. | 05.12.2025 | Fate of RBC |
| 4. | 06.12.2025 | Hemoglobin-chemical structure, synthesis, Physiological functions, derivatives of hemoglobin |
| 5. | 10.12.2025 | Heart- morphological characteristic, Systemic excitability conduction and transmission processes |
| 6. | 11.12.2025 | Cardiac Cycle |
| 7. | 12.12.2025 | Regulation of cardiac output |
| 8. | 13.12.2025 | Coronary circulation, Properties of pulse |
| 9. | 17.12.2025 | Metabolism and energetic of working myocardial cell, Extrinsic and intrinsic regulation |
| 10. | 18.12.2025 | Electro Cardio Graph and its significance in Veterinary Sciences -Echocardiography |
| 11. | 19.12.2025 | Haemorrhage haemostasis |
| 12. | 20.12.2025 | Haemodynamics of circulation |
| 13. | 24.12.2025 | Circulatory mechanics, resistance to flow |
| 14. | 25.12.2025 | Vasoconstriction, nervous, and circulating fluid volume controls of blood pressure |
| 15. | 26.12.2025 | Neurohormonal control of vascular smooth muscle |
| 16. | 27.12.2025 | Circulatory controls- shock stresses |
| 17. | 31.12.2025 | Regional and fetal circulation, Capillary exchange, control of blood pressure |
| 18. | 01.01.2026 | Adjustment of circulation during exercise |
| 19. | 02.01.2026 | Muscle Physiology - basic muscle unit characteristic - electrical phenomenon in muscle cell - muscle action potential |
| 20. | 03.01.2026 | Excitation and propagation of impulse characteristics |
| 21. | 07.01.2026 | Latent period, refractiveness, threshold level-all and none characteristics |
| 22. | 08.01.2026 | Contractile mechanism - excitation - contraction coupling |
| 23. | 09.01.2026 | Neuro-muscular transmission |
| 24. | 10.01.2026 | Types of muscle contraction, phenomenon of fatigue, rigor mortis |
| 25. | 14.01.2026 | Organization of nervous system- Mechanism of information processing, hierarchical control |

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| 26. | 15.01.2026 | Major function system- sensory Consciousness, emotion |
| 27. | 16.01.2026 | Motor and visceral control |
| 28. | 17.01.2026 | Basic functional unit - neuron structure, type- functional characteristics of sub-units of neuron |
| 29. | 21.01.2026 | Membrane potential: ionic basis of resting membrane potential (RMP) nerve action potential |
| 30. | 22.01.2026 | Excitation and propagation of impulse characteristics- latent period- refractiveness, threshold level-all and none characteristics |
| 31. | 23.01.2026 | Degeneration and regeneration of nerve fibre |
| 32. | 24.01.2026 | Synaptic and junctional transmission |
| 33. | 28.01.2026 | Functions of nervous system-reflexes |
| 34. | 29.01.2026 | Control of posture and movements |
| 35. | 30.01.2026 | Autonomic nervous system and visceral control |
| 36. | 31.01.2026 | Neurotransmitter, wakefulness, sleep cycle |
| 37. | 04.02.2026 | Higher function of neurons system - learning, memory, electroencephalography |
| 38. | 05.02.2026 | Sense organs and receptors physiology of special senses - Eye: functional morphology, nourishment and protection neural pathway |
| 39. | 06.02.2026 | Receptors- optics, ocular muscles and movements, photochemistry, Vision defects |
| 40. | 07.02.2026 | Ear: Physiology of hearing and common hearing impairment. Vestibule apparatus |
| 41. | 11.02.2026 | Physiology of olfaction and taste |

UNIT-2 (Digestive and Respiratory Systems)

| S. No. | Date | Topics |
|--------|------------|--|
| 42 | 12.02.2026 | Morphological characteristic of mono gastric and poly gastric digestive system |
| 43 | 13.02.2026 | Prehension, rumination, defecation, vomition |
| 44 | 14.02.2026 | Regulation of secretory function of saliva, stomach |
| 45 | 18.02.2026 | Regulation of intestine |
| 46 | 19.02.2026 | Regulation of pancreas |
| 47. | 20.02.2026 | Regulation of bile secretion |
| 48. | 21.02.2026 | Hunger, appetite control |
| 49. | 25.02.2026 | Developmental aspects of digestion |
| 50. | 26.02.2026 | Luminous, membranous and microbial digestion in rumen and intestine |
| 51. | 27.02.2026 | Permeability characteristics of the intestine |
| 52. | 28.02.2026 | Forces governing absorption |
| 53. | 04.03.2026 | Control of intestinal transport of electrolyte and water |
| 54. | 05.03.2026 | Enzymatic digestion in monogastric |
| 55. | 06.03.2026 | Fermentative digestion in rumen |
| 56. | 07.03.2026 | Modification of toxic substances in rumen |
| 57. | 11.03.2026 | Digestion in birds |
| 58. | 12.03.2026 | Functional morphology of respiratory apparatus |
| 59. | 13.03.2026 | Mechanics of breathing |

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| 60. | 14.03.2026 | Transport of Blood Gases |
| 61. | 18.03.2026 | Foetal and neonatal oxygen transport |
| 62. | 19.03.2026 | Dissociation curves |
| 63. | 20.03.2026 | Pressures, Recoil tendency, elasticity, surfactants, pleural liquid, compliance |
| 64. | 21.03.2026 | Exchanges of gases in lungs and tissues |
| 65. | 25.03.2026 | Neural regulation of breathing |
| 66. | 26.03.2026 | Chemical regulation of breathing |
| 67. | 27.03.2026 | Diffusion, Perfusion |
| 68. | 28.03.2026 | Hypoxia |
| 69. | 01.04.2026 | Frictional resistance to air flow, airways smooth muscle contraction, |
| 70. | 02.04.2026 | Respiratory muscle work, Panting |
| 71. | 03.04.2026 | Adaptation of respiration during muscle exercise |
| 72. | 04.04.2026 | High altitude hypoxia |
| 73. | 08.04.2026 | Non-respiratory lung functions |
| 74. | 09.04.2026 | Respiration in birds |

UNIT-3 (Excretory and Endocrine Systems)

| S. No. | Date | Topics |
|--------|------------|--|
| 75. | 10.04.2026 | Kidney- Functional morphology of nephrons, factors determining filtration pressure |
| 76. | 11.04.2026 | Determination of glomerular filtration rate (GFR) and renal plasma flow |
| 77. | 15.04.2026 | Re-absorption mechanisms for glucose, protein, amino acids, electrolytes |
| 78. | 16.04.2026 | Ammonium mechanism, Glomerulo-tubular balance |
| 79. | 17.04.2026 | Methods of studying renal functions |
| 80. | 18.04.2026 | Urine concentration |
| 81. | 22.04.2026 | Micturition, uremia |
| 82. | 23.04.2026 | Fluid, Water balance, Fluid Therapy, |
| 83. | 24.04.2026 | Dehydration, water concentration mechanisms |
| 84. | 25.04.2026 | Acid base balance, H ⁺ regulation, correction and evolution of imbalances, total osmotic pressure |
| 85. | 29.04.2026 | Formation and excretion of urine of Birds |
| 86. | 30.04.2026 | Cerebrospinal fluid - composition, formation and flow |
| 87. | 01.05.2026 | Synovial fluids - composition, formation and flow; Joints |
| 88. | 02.05.2026 | Regulation of bone metabolism |
| 89. | 06.05.2026 | Homeostasis |
| 90. | 07.05.2026 | Hormone cell interaction, sub-cellular mechanisms |
| 91. | 08.05.2026 | Metabolism of hormones |
| 92. | 09.05.2026 | Methods of study of endocrine systems |
| 93. | 13.05.2026 | Receptors-Mechanism of regulation |
| 94. | 14.05.2026 | Chemistry of hypothalamo- hypophyseal hormones |
| 95. | 15.05.2026 | Target organ: Pineal, Thyroid |
| 96. | 16.05.2026 | Thymus |
| 97. | 20.05.2026 | Pancreas |
| 98. | 21.05.2026 | Adrenal |
| 99. | 22.05.2026 | Prostaglandins, hormones of calcium metabolism, disorders |

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| 100. | 23.05.2026 | Renin-angiotensin system |
| 101. | 27.05.2026 | Atrial natriuretic factors, erythropoietin |
| 102. | 28.05.2026 | GI hormones, pheromones |

UNIT-4 (Reproduction, Lactation, Growth and Environmental Physiology)

| S. No. | Date | Topics |
|--------|------------|---|
| 103. | 29.05.2026 | Genetic and endocrine control of gonadal development |
| 104. | 30.05.2026 | Modification of gonadotrophin release, ovarian functions |
| 105. | 03.06.2026 | Follicular development, dynamics, endocrine and receptor profiles |
| 106. | 04.06.2026 | Sexual receptivity, ovarian cycle |
| 107. | 05.06.2026 | Post-partum ovarian activity, ovum transport, Capacitation, fertilization |
| 108. | 06.06.2026 | Reproductive cycle in farm animals |
| 109. | 10.06.2026 | Hormones present in the biological fluids during pregnancy and their uses for the diagnosis of pregnancy |
| 110. | 11.06.2026 | Maternal foetal placental participation in pregnancy and parturition |
| 111. | 12.06.2026 | Immunology of gestation |
| 112. | 13.06.2026 | Preparturient endocrine status |
| 113. | 17.06.2026 | Spermatogenic cycle and wave |
| 114. | 18.06.2026 | Function of sertoli cell-leydig cell-semen - composition-evaluation |
| 115. | 19.06.2026 | Testosterone - function and regulation - cryptorchidism. |
| 116. | 20.06.2026 | Puberty - photoperiod - uses of androgens, progestogens, estrogens. |
| 117. | 24.06.2026 | Functional and metabolic organization of mammary glands - structure and development; effect of estrogens and progesterone |
| 118. | 25.06.2026 | Hormonal control of mammary growth |
| 119. | 26.06.2026 | Lactogenesis and galactogenesis |
| 120. | 27.06.2026 | Biosynthesis of milk constituents - secretion of milk and metabolism |
| 121. | 01.07.2026 | Prolactin and lactation cycle |
| 122. | 02.07.2026 | Biochemical and genetic determinants of growth |
| 123. | 03.07.2026 | Regulation of growth, metabolic and hormone interactions |
| 124. | 04.07.2026 | Factors affecting efficiency of growth and production in ruminants and single stomach animals |
| 125. | 08.07.2026 | Growth in meat producing animals and birds, growth curves |
| 126. | 09.07.2026 | Recombinant gene transfer technologies for growth manipulation- advantages and limitations |
| 127. | 10.07.2026 | Protein deposition in animals and poultry |
| 128. | 11.07.2026 | Heat balance, heat tolerance |
| 129. | 15.07.2026 | Hypothermia, hyperthermia |
| 130. | 16.07.2026 | Thermo-regulation in farm animals, role of skin, responses of animals to heat and cold |
| 131. | 17.07.2026 | Fever, body temperature and hibernation |
| 132. | 18.07.2026 | Temperature regulation in birds |
| 133. | 22.07.2026 | Climatology- various parameters and their importance |

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| 134. | 23.07.2026 | Effect of different environmental variables like temperature, humidity, light on animal performance |
| 135. | 24.07.2026 | Effect of different environmental variables like radiation, altitude on animal performance |
| 136. | 25.07.2026 | Acclimation, Acclimatization - general adaptive syndrome |
| 137. | 29.07.2026 | Clinical aspects of endocrine – reproductive functions, Circadian rhythm |
| 138. | 30.07.2026 | Neurophysiology of behaviours, Types of behaviour |
| 139. | 31.07.2026 | Communication |
| 140. | 01.08.2026 | Learning and memory, behavioural plasticity |

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Practical

Lecture Duration: Two hours

Name of Teachers: Dr. Nalini Kataria, Dr. Ankita Anil Kiledar, Dr. Saurabh Singh Singhal, Dr. Pankaj Kumar

UNIT -1 (Blood, Cardiovascular, Nervous and Muscular Systems)

| S. No. | DATE | Topics |
|---------------|--|--|
| 1. | B batch – 01.12.2025 C batch – 02.12.2025 D batch – 03.12.2025 A batch – 04.12.2025 | Collection of blood sample - Separation of serum, plasma - Preservation of defibrinated blood |
| 2. | B batch – 08.12.2025 C batch – 09.12.2025 D batch – 10.12.2025 A batch – 11.12.2025 | Enumeration of erythrocytes (red blood cell) |
| 3. | B batch – 15.12.2025 C batch – 16.12.2025 D batch – 17.12.2025 A batch – 18.12.2025 | Enumeration of Leukocyte |
| 4. | B batch – 22.12.2025 C batch – 23.12.2025 D batch – 24.12.2025 A batch – 25.12.2025 | Differential leucocytic count |
| 5. | B batch – 29.12.2025 C batch – 30.12.2025 D batch – 31.12.2025 A batch – 01.01.2026 | Platelet count |
| 6. | B batch – 05.01.2026 C batch – 06.01.2026 D batch – 07.01.2026 A batch – 08.01.2026 | Estimation of Haemoglobin |
| 7. | B batch – 12.01.2026 C batch – 13.01.2026 D batch – 14.01.2026 A batch – 15.01.2026 | Haematocrit - erythrocyte sedimentation rate - packed cell volume |
| 8. | B batch – 19.01.2026 C batch – 20.01.2026 D batch – 21.01.2026 A batch – 22.01.2026 | Coagulation time- bleeding time |
| 9. | B batch – 26.01.2026 C batch – 27.01.2026 D batch – 28.01.2026 A batch – 29.01.2026 | Erythrocyte fragility and viscosity |

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| 10. | B batch – 02.02.2026 C batch – 03.02.2026 D batch – 04.02.2026 A batch – 05.02.2026 | Blood grouping - recording of ECG - measurement of arterial blood pressure (Sphygmomanometry) |
| 11. | B batch – 09.02.2026 C batch – 10.02.2026 D batch – 11.02.2026 A batch – 12.02.2026 | Simulation experiments on Nerve- Muscle and heart physiology |

UNIT-2 (Digestive and Respiratory Systems)

| S. No. | DATE | Topics |
|--------|--|---|
| 12. | B batch – 16.02.2026 C batch – 17.02.2026 D batch – 18.02.2026 A batch – 19.02.2026 | Counting of rumen motility Estimation of volatile fatty acids in rumen liquor |
| 13. | B batch – 23.02.2026 C batch – 24.02.2026 D batch – 25.02.2026 A batch – 26.02.2026 | Estimation of ammonia nitrogen in rumen liquor |
| 14. | B batch – 02.03.2026 C batch – 03.03.2026 D batch – 04.03.2026 A batch – 05.03.2026 | Bacterial count |
| 15. | B batch – 09.03.2026 C batch – 10.03.2026 D batch – 11.03.2026 A batch – 12.03.2026 | Protozoal count |
| 16. | B batch – 16.03.2026 C batch – 17.03.2026 D batch – 18.03.2026 A batch – 19.03.2026 | <i>In-vitro</i> action of proteolytic enzymes- Amylase |
| 17. | B batch – 23.03.2026 C batch – 24.03.2026 D batch – 25.03.2026 A batch – 26.03.2026 | <i>In-vitro</i> action of proteolytic enzymes- pepsin |
| 18. | B batch – 30.03.2026 C batch – 31.03.2026 D batch – 01.04.2026 A batch – 02.04.2026 | <i>In-vitro</i> action of proteolytic enzymes- trypsin. |
| 19. | B batch – 06.04.2026 C batch – 07.04.2026 D batch – 08.04.2026 A batch – 09.04.2026 | Recording of respiration, spirometry Recording of volume and capacities in different physiological states including determination of vital capacities. |

UNIT-3 (Excretory and Endocrine Systems)

| S. No. | DATE | Topics |
|--------|--|--|
| 20. | B batch – 13.04.2026 C batch – 14.04.2026 D batch – 15.04.2026 | Urine analysis – physiological constituents, Pathological determinates |

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| | A batch – 16.04.2026 | |
| 21. | B batch – 20.04.2026 C batch – 21.04.2026 D batch – 22.04.2026 A batch – 23.04.2026 | Determination of glomerular filtration rate |
| 22. | B batch – 27.04.2026 C batch – 28.04.2026 D batch – 29.04.2026 A batch – 30.04.2026 | Titratable acidity Determination of inorganic phosphorous |
| 23. | B batch – 04.05.2026 C batch – 05.05.2026 D batch – 06.05.2026 A batch – 07.05.2026 | Urine Ammonia Nitrogen |
| 24. | B batch – 11.05.2026 C batch – 12.05.2026 D batch – 13.05.2026 A batch – 14.05.2026 | Creatinine in urine |
| 25. | B batch – 18.05.2026 C batch – 19.05.2026 D batch – 20.05.2026 A batch – 21.05.2026 | Recording of rumen-intestinal movements (Demonstration) |
| 26. | B batch – 25.05.2026 C batch – 26.05.2026 D batch – 27.05.2026 A batch – 28.05.2026 | Bio assay for tropic hormone |
| 27. | B batch – 01.06.2026 C batch – 02.06.2026 D batch – 03.06.2026 A batch – 04.06.2026 | Demonstration of hormone estimation |

UNIT-4 (Reproduction, Lactation, Growth and Environmental Physiology)

| S. No. | DATE | Topics |
|---------------|--|---|
| 28. | B batch – 08.06.2026 C batch – 09.06.2026 D batch – 10.06.2026 A batch – 11.06.2026 | Oestrus and phases of the oestrous cycle in animals (Vaginal Mucus) |
| 29. | B batch – 15.06.2026 C batch – 16.06.2026 D batch – 17.06.2026 A batch – 18.06.2026 | Behavioural signs of oestrus |
| 30. | B batch – 22.06.2026 C batch – 23.06.2026 D batch – 24.06.2026 A batch – 25.07.2026 | Sperm motility Sperm concentration |
| 31. | B batch – 29.06.2026 C batch – 30.06.2026 D batch – 01.07.2026 A batch – 02.07.2026 | Live and dead sperm count Abnormal sperm count |
| 32. | B batch – 06.07.2026 C batch – 07.07.2026 | Measurement of growth in various species Measuring surface area of animals |

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| | D batch – 08.07.2026 A batch – 09.07.2026 | |
| 33. | B batch – 13.07.2026 C batch – 14.07.2026 D batch – 15.07.2026 A batch – 16.07.2026 | Health parameters of animals- body temperature, pulse, respiration and heart rate. |
| 34. | B batch – 20.07.2026 C batch – 21.07.2026 D batch – 22.07.2026 A batch – 23.07.2026 | Measurement of animal environmental conditions. |
| 35. | B batch – 27.07.2026 C batch – 28.07.2026 D batch – 29.07.2026 A batch – 30.07.2026 | Behaviour of animals- mating behavior, feeding behaviour (live or video graphic or computer simulated Demonstration). |