

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

Kheda, Hindaun City, Karauli

LECTURE SCHEDULE – THEORY AND PRACTICAL

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

VETERINARY PHYSIOLOGY

Credit Hrs. (4+1)

w.e.f. 14/10/2024

Theory

Lecture Duration: One hour

Name of Teachers: Dr. Pankaj Kumar, Dr. Saurabh Singh Singhal ,Dr. NaliniKataria and Dr. Ankita Anil Kiledar,

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

S. No.	Date	Topic
1.	14.10.2024	Orientation programme
2.	15.10.2024	Introduction to Blood; Properties of blood as a body fluid. metabolism of R.B.C
3.	18.10.2024	Fate of RBC
4.	19.10.2024	Hemoglobin-chemical structure, synthesis, Physiological functions, derivatives of hemoglobin
5.	21.10.2024	Heart- morphological characteristic, Systemic excitability conduction and transmission processes
6.	22.10.2024	Cardiac Cycle
7.	04.11.2024	Regulation of cardiac output
8.	05.11.2024	Coronary circulation, Properties of pulse
9.	08.11.2024	Metabolism and energetic of working myocardial cell, Extrinsic and intrinsic regulation
10.	11.11.2024	Electro Cardio Graph and its significance in Veterinary Sciences -Echocardiography
11.	12.11.2024	Haemorrhage haemostasis
12.	16.11.2024	Haemodynamics of circulation
13.	18.11.2024	Circulatory mechanics, resistance to flow
14.	19.11.2024	Vasoconstriction, nervous, and circulating fluid volume controls of blood pressure
15.	22.11.2024	Neurohormonal control of vascular smooth muscle
16.	23.11.2024	Circulatory controls- shock stresses
17.	25.11.2024	Regional and fetal circulation, Capillary exchange, control of blood pressure
18.	26.11.2024	Adjustment of circulation during exercise
19.	29.11.2024	Muscle Physiology - basic muscle unit characteristic - electrical phenomenon in muscle cell - muscle action potential
20.	30.11.2024	Excitation and propagation of impulse characteristics
21.	02.12.2024	Latent period, refractiveness, threshold level-all and none characteristics
22.	03.12.2024	Contractile mechanism - excitation - contraction coupling
23.	06.12.2024	Neuro-muscular transmission
24.	07.12.2024	Types of muscle contraction, phenomenon of fatigue, rigor mortis
25.	09.12.2024	Organization of nervous system- Mechanism of information

		processing, hierarchical control
26.	10.12.2024	Major function system- sensory Consciousness, emotion
27.	13.12.2024	Motor and visceral control
28.	16.12.2024	Basic functional unit - neuron structure, type- functional characteristics of sub-units of neuron
29.	17.12.2024	Membrane potential: ionic basis of resting membrane potential (RMP) nerve action potential
30.	20.12.2024	Excitation and propagation of impulse characteristics- latent period- refractiveness, threshold level-all and none characteristics
31.	21.12.2024	Degeneration and regeneration of nerve fibre
32.	23.12.2024	Synaptic and junctional transmission
33.	24.12.2024	Functions of nervous system-reflexes
34.	27.12.2024	Control of posture and movements
35.	28.12.2024	Autonomic nervous system and visceral control
36.	30.12.2024	Neurotransmitter, wakefulness, sleep cycle
37.	31.12.2024	Higher function of neurons system - learning, memory, electroencephalography
38.	03.01.2025	Sense organs and receptors physiology of special senses - Eye: functional morphology, nourishment and protection neural pathway
39.	04.01.2025	Receptors- optics, ocular muscles and movements, photochemistry, Vision defects
40.	07.01.2025	Ear: Physiology of hearing and common hearing impairment. Vestibule apparatus
41.	08.01.2025	Physiology of olfaction and taste

UNIT-2 (Digestive and Respiratory Systems)

S. No.	Date	Topic
42	09.01.2025	Morphological characteristic of mono gastric and poly gastric digestive system
43	10.01.2025	Prehension, rumination, defecation, vomition
44	13.01.2025	Regulation of secretory function of saliva, stomach
45	14.01.2025	Regulation of intestine
46	17.01.2025	Regulation of pancreas
47.	18.01.2025	Regulation of bile secretion
48.	20.01.2025	Hunger, appetite control
49.	21.01.2025	Developmental aspects of digestion
50.	22.01.2025	Luminous, membranous and microbial digestion in rumen and intestine
51.	27.01.2025	Permeability characteristics of the intestine
52.	28.01.2025	Forces governing absorption
53.	31.01.2025	Control of intestinal transport of electrolyte and water
54.	03.02.2025	Enzymatic digestion in monogastric
55.	07.02.2025	Fermentative digestion in rumen
56.	10.02.2025	Modification of toxic substances in rumen
57.	11.02.2025	Digestion in birds
58.	14.02.2025	Functional morphology of respiratory apparatus

59.	15.02.2025	Mechanics of breathing
60.	17.02.2025	Transport of Blood Gases
61.	18.02.2025	Foetal and neonatal oxygen transport
62.	21.02.2025	Dissociation curves
63.	22.02.2025	Pressures, Recoil tendency, elasticity, surfactants, pleural liquid, compliance
64.	27.02.2025	Exchanges of gases in lungs and tissues
65.	03.03.2025	Neural regulation of breathing
66.	04.03.2025	Chemical regulation of breathing
67.	05.03.2025	Diffusion, Perfusion
68.	06.03.2025	Hypoxia
69.	07.03.2025	Frictional resistance to air flow, airways smooth muscle contraction,
70.	10.03.2025	Respiratory muscle work, Panting
71.	11.03.2025	Adaptation of respiration during muscle exercise
72.	18.03.2025	High altitude hypoxia
73.	19.03.2025	Non-respiratory lung functions
74.	20.03.2025	Respiration in birds

UNIT-3 (Excretory and Endocrine Systems)

S. No.	Date	Topic
75.	21.03.2025	Kidney- Functional morphology of nephrons, factors determining filtration pressure
76.	24.03.2025	Determination of glomerular filtration rate (GFR) and renal plasma flow
77.	28.03.2025	Re-absorption mechanisms for glucose, protein, amino acids, electrolytes
78.	29.03.2025	Ammonium mechanism, Glomerulo-tubular balance
79.	02.04.2025	Methods of studying renal functions
80.	04.04.2025	Urine concentration
81.	05.04.2025	Micturition, uremia
82.	07.04.2025	Fluid, Water balance, Fluid Therapy,
83.	08.04.2025	Dehydration, water concentration mechanisms
84.	15.04.2025	Acid base balance, H ⁺ regulation, correction and evolution of imbalances, total osmotic pressure
85.	16.04.2025	Formation and excretion of urine of Birds
86.	17.04.2025	Cerebrospinal fluid - composition, formation and flow
87.	19.04.2025	Synovial fluids - composition, formation and flow; Joints
88.	21.04.2025	Regulation of bone metabolism
89.	22.04.2025	Homeostasis
90.	25.04.2025	Hormone cell interaction, sub-cellular mechanisms
91.	28.04.2025	Metabolism of hormones
92.	30.04.2025	Methods of study of endocrine systems
93.	01.05.2025	Receptors-Mechanism of regulation
94.	02.05.2025	Chemistry of hypothalamo- hypophyseal hormones
95.	03.05.2025	Target organ: Pineal, Thyroid
96.	05.05.2025	Thymus
97.	06.05.2025	Pancreas
98.	07.05.2025	Adrenal

99.	08.05.2025	Prostaglandins, hormones of calcium metabolism, disorders
100.	09.05.2025	Renin-angiotensin system
101.	12.05.2025	Atrial natriuretic factors, erythropoietin
102.	13.05.2025	GI hormones, pheromones

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

S. No.	Date	Topic
103.	17.05.2025	Genetic and endocrine control of gonadal development
104.	19.05.2025	Modification of gonadotrophin release, ovarian functions
105.	20.05.2025	Follicular development, dynamics, endocrine and receptor profiles
106.	23.05.2025	Sexual receptivity, ovarian cycle
107.	24.05.2025	Post-partum ovarian activity, ovum transport, Capacitation, fertilization
108.	26.05.2025	Reproductive cycle in farm animals
109.	27.05.2025	Hormones present in the biological fluids during pregnancy and their uses for the diagnosis of pregnancy
110.	28.05.2025	Maternal foetal placental participation in pregnancy and parturition
111.	30.05.2025	Immunology of gestation
112.	31.05.2025	Preparturient endocrine status
113.	02.06.2025	Spermatogenic cycle and wave
114.	03.06.2025	Function of sertoli cell-leydig cell-semen - composition-evaluation
115.	05.06.2025	Testosterone - function and regulation - cryptorchidism.
116.	06.06.2025	Puberty - photoperiod - uses of androgens, progestogens, estrogens.
117.	09.06.2025	Functional and metabolic organization of mammary glands - structure and development; effect of estrogens and progesterone
118.	10.06.2025	Hormonal control of mammary growth
119.	13.06.2025	Lactogenesis and galactogenesis
120.	16.06.2025	Biosynthesis of milk constituents - secretion of milk and metabolism
121.	17.06.2025	Prolactin and lactation cycle
122.	23.06.2025	Biochemical and genetic determinants of growth
123.	24.06.2025	Regulation of growth, metabolic and hormone interactions
124.	07.07.2025	Factors affecting efficiency of growth and production in ruminants and single stomach animals
125.	08.07.2025	Growth in meat producing animals and birds, growth curves
126.	09.07.2025	Recombinant gene transfer technologies for growth manipulation- advantages and limitations
127.	10.07.2025	Protein deposition in animals and poultry
128.	11.07.2025	Heat balance, heat tolerance
129.	14.07.2025	Hypothermia, hyperthermia
130.	15.07.2025	Thermo-regulation in farm animals, role of skin, responses of animals to heat and cold
131.	18.07.2025	Fever, body temperature and hibernation
132.	19.07.2025	Temperature regulation in birds
133.	21.07.2025	Climatology- various parameters and their importance

134.	22.07.2025	Effect of different environmental variables like temperature, humidity, light on animal performance
135.	25.07.2025	Effect of different environmental variables like radiation, altitude on animal performance
136.	26.07.2025	Acclimation, Acclimatization - general adaptive syndrome
137.	28.07.2025	Clinical aspects of endocrine – reproductive functions, Circadian rhythm
138.	29.07.2025	Neurophysiology of behaviours, Types of behaviour
139.	01.08.2025	Communication
140.	02.08.2025	Learning and memory, behavioural plasticity
141.	04.08.2025	Revision Class-UNIT 1
142.	05.08.2025	Revision Class-UNIT 2
143.	08.08.2025	Revision Class-UNIT 3
144.	11.08.2025	Revision Class-UNIT 4
145.	12.08.2025	Revision Class-UNIT 1
146.	18.08.2025	Revision Class-UNIT 2
147.	19.08.2025	Revision Class-UNIT 3
148.	22.08.2025	Revision Class-UNIT 4
149.	23.08.2025	Revision Class-UNIT 1
150.	25.08.2025	Revision Class-UNIT 2
151.	26.08.2025	Revision Class-UNIT 3
152.	27.08.2025	Revision Class-UNIT 4
153.	29.08.2025	Revision Class-UNIT 1,2
154.	30.08.2025	Revision Class-UNIT 3,4
155.	01.09.2025	Revision Class-UNIT 1,2
156.	03.09.2025	Revision Class-UNIT 3,4
157.	04.09.2025	Revision Class-UNIT 1,2,3,4
158.	06.09.2025	Revision Class-UNIT 1,2,3,4

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VETERINARY PHYSIOLOGY

Credit Hrs. (4+1)

w.e.f. 14/10/2024

Practical

Lecture Duration: Two hours

Name of Teachers: Dr. Pankaj Kumar, Dr. Saurabh Singh Singhal ,Dr. NaliniKataria and Dr. Ankita Anil Kiledar,

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

S. No.	DATE	Topics
1.	B batch – 14.10.2024 C batch – 15.10.2024 D batch – 16.10.2024 A batch – 17.10.2024	Collection of blood sample - Separation of serum, plasma - Preservation of defibrinated blood
2.	B batch – 21.10.2024 C batch – 22.10.2024 D batch – 23.10.2024 A batch – 24.10.2024	Enumeration of erythrocytes (red blood cell)
3.	B batch – 04.11.2024 C batch – 05.11.2024 D batch – 06.11.2024 A batch – 07.11.2024	Enumeration of Leukocyte
4.	B batch – 11.11.2024 C batch – 12.11.2024 D batch – 13.11.2024 A batch – 14.11.2024	Differential leucocytic count
5.	B batch – 18.11.2024 C batch – 19.11.2024 D batch – 20.11.2024 A batch – 21.11.2024	Platelet count
6.	B batch – 25.11.2024 C batch – 26.11.2024 D batch – 27.11.2024 A batch – 28.11.2024	Estimation of Haemoglobin
7.	B batch – 02.12.2024 C batch – 03.12.2024 D batch – 04.12.2024 A batch – 05.12.2024	Haematocrit - erythrocyte sedimentation rate - packed cell volume
8.	B batch – 09.12.2024 C batch – 10.12.2024 D batch – 11.12.2024 A batch – 12.12.2024	Coagulation time- bleeding time
9.	B batch – 16.12.2024 C batch – 17.12.2024	Erythrocyte fragility and viscosity

	D batch – 18.12.2024 A batch – 19.12.2024	
10.	B batch – 23.12.2024 C batch – 24.12.2024 D batch – 01.01.2025 A batch – 26.12.2024	Blood grouping - recording of ECG - measurement of arterial blood pressure (Sphygmomanometry)
11.	B batch – 30.12.2024 C batch – 31.12.2024 D batch – 08.01.2025 A batch – 30.12.2024	Simulation experiments on Nerve- Muscle and heart physiology

UNIT-2 (Digestive and Respiratory Systems)

S. No.	DATE	Topics
12.	B batch – 13.01.2025 C batch – 08.01.2025 D batch – 15.01.2025 A batch – 13.01.2025	Counting of rumen motility Estimation of volatile fatty acids in rumen liquor
13.	B batch – 27.01.2025 C batch – 14.01.2025 D batch – 29.01.2025 A batch – 16.01.2025	Estimation of ammonia nitrogen in rumen liquor
14.	B batch – 03.02.2025 C batch – 28.01.2025 D batch – 05.02.2025 A batch – 30.01.2025	Bacterial count
15.	B batch – 10.02.2025 C batch – 11.02.2025 D batch – 12.02.2025 A batch – 06.02.2025	Protozoal count
16.	B batch – 17.02.2025 C batch – 18.02.2025 D batch – 19.02.2025 A batch – 13.02.2025	<i>In-vitro</i> action of proteolytic enzymes- Amylase
17.	B batch – 03.03.2025 C batch – 25.02.2025 D batch – 05.03.2025 A batch – 20.02.2025	<i>In-vitro</i> action of proteolytic enzymes- pepsin
18.	B batch – 10.03.2025 C batch – 04.03.2025 D batch – 12.03.2025 A batch – 06.03.2025	<i>In-vitro</i> action of proteolytic enzymes- trypsin.
19.	B batch – 17.03.2025 C batch – 11.03.2025 D batch – 19.03.2025 A batch – 20.03.2025	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
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20.	B batch – 24.03.2025 C batch – 18.03.2025 D batch – 26.03.2025 A batch – 27.03.2025	Urine analysis – physiological constituents, Pathological determinates
21.	B batch – 07.04.2025 C batch – 25.03.2025 D batch – 02.04.2025 A batch – 03.04.2025	Determination of glomerular filtration rate
22.	B batch – 21.04.2025 C batch – 01.04.2025 D batch – 09.04.2025 A batch – 17.04.2025	Titrateable acidity Determination of inorganic phosphorous
23.	B batch – 28.04.2025 C batch – 08.04.2025 D batch – 16.04.2025 A batch – 24.04.2025	Urine Ammonia Nitrogen
24.	B batch – 05.05.2025 C batch – 15.04.2025 D batch – 23.04.2025 A batch – 15.05.2025	Creatinine in urine
25.	B batch – 12.05.2025 C batch – 22.04.2025 D batch – 30.04.2025 A batch – 22.05.2025	Recording of rumen-intestinal movements (Demonstration)
26.	B batch – 19.05.2025 C batch – 13.05.2025 D batch – 14.05.2025 A batch – 05.06.2025	Bio assay for tropic hormone
27.	B batch – 26.05.2025 C batch – 20.05.2025 D batch – 21.05.2025 A batch – 12.06.2025	Demonstration of hormone estimation

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

S. No.	DATE	Topics
28.	B batch – 02.06.2025 C batch – 03.06.2025 D batch – 04.06.2025 A batch – 09.06.2025	Oestrus and phases of the oestrous cycle in animals (Vaginal Mucus)
29.	B batch – 09.06.2025 C batch – 10.06.2025 D batch – 11.06.2025 A batch – 26.06.2025	Behavioural signs of oestrus
30.	B batch – 16.06.2025 C batch – 17.06.2025 D batch – 18.06.2025 A batch – 03.07.2025	Sperm motility Sperm concentration
31.	B batch – 23.06.2025 C batch – 24.06.2025 D batch – 25.06.2025 A batch – 17.07.2025	Live and dead sperm count Abnormal sperm count

32.	B batch – 30.06.2025 C batch – 15.07.2025 D batch – 02.07.2025 A batch – 24.07.2025	Measurement of growth in various species Measuring surface area of animals
33.	B batch – 14.07.2025 C batch – 22.07.2025 D batch – 16.07.2025 A batch – 31.07.2025	Health parameters of animals- body temperature, pulse, respiration and heart rate.
34.	B batch – 21.07.2025 C batch – 29.07.2025 D batch – 23.07.2025 A batch – 07.08.2025	Measurement of animal environmental conditions.
35.	B batch – 28.07.2025 C batch – 05.08.2025 D batch – 30.07.2025 A batch – 14.08.2025	Behaviour of animals- mating behavior, feeding behaviour (live or video graphic or computer simulated Demonstration).
36.	B batch – 04.08.2025 C batch – 12.08.2025 D batch – 06.08.2025 A batch – 21.08.2025	Revision
37.	B batch – 11.08.2025 C batch – 19.08.2025 D batch – 13.08.2025 A batch – 28.08.2025	Revision
38.	B batch – 18.08.2025 C batch – 26.08.2025 D batch – 20.08.2025 A batch – 04.09.2025	Revision
39.	B batch – 25.08.2025 D batch – 27.08.2025	Revision
40.	B batch – 01.09.2025 D batch – 03.09.2025	Revision
41.	B batch – 06.09.2025	Revision