

# Mahatma Jyotiba Fule College of Veterinary & Animal Sciences, Chomu, Jaipur (Raj.)

Department of Veterinary Physiology and Biochemistry

**Veterinary Physiology (Theory)**

**Credit Hours: 4**

**Unit- I: Blood, Cardiovascular, Nervous and Muscular Systems**

**Unit-II: Digestive and Respiratory Systems**

**Unit-III: Excretory and Endocrine Systems**

**Unit-IV: Reproduction, Lactation, Growth and Environmental Physiology**

**Duration: 1-2-2021 to 20-11-2021**

Sl. No.	Lecture Topic(s)	Dates
1.	Introduction to Blood; Properties of blood as a body fluid	1-2-2021
2.	Metabolism and fate of R.B.C.	2-2-2021
3.	Hemoglobin-chemical structure, and synthesis	3-2-2021
4.	Physiological functions, and derivatives of haemoglobin	4-2-2021
5.	Heart- morphological characteristic	8-2-2021
6.	Systemic excitability conduction and transmission processes	9-2-2021
7.	Cardiac cycle	10-2-2021
8.	Regulation of cardiac output	11-2-2021
9.	Coronary circulation; Properties of pulse	15-2-2021
10.	Metabolism and energetic of working myocardial cell	16-2-2021
11.	Extrinsic and intrinsic regulation	17-2-2021
12.	Electro Cardio Graph and its significance in Veterinary Sciences – Echocardiography	18-2-2021
13.	Haemorrhage and haemostasis	22-2-2021
14.	Haemodynamics of circulation, circulatory mechanics, resistance to flow, vasoconstriction	23-2-2021
15.	Nervous and circulating fluid volume control of blood pressure; Neurohormonal control of vascular smooth muscle	8-3-2021
16.	Circulatory controls- shock stresses; Regional and fetal circulation	9-3-2021
17.	Capillary exchange; Control of blood pressure; Adjustment of circulation during exercise.	10-3-2021
18.	Basic muscle unit characteristic; Electrical phenomenon in muscle cell; Muscle action potential	15-3-2021
19.	Excitation and propagation of impulse characteristics; Latent period, Refractiveness, Threshold level, All and none characteristics	16-3-2021
20.	Contractile mechanism; Excitation -contraction coupling; neuro-muscular transmission	18-3-2021
21.	Types of muscle contraction; Phenomenon of fatigue, Rigor mortis	22-3-2021
22.	Organization of nervous system	23-3-2021
23.	Mechanism of information processing; Hierarchical control	24-3-2021
24.	Major function system, sensory, consciousness, emotion, motor	25-3-2021

	and visceral control	
25.	Basic functional unit: neuron structure and type	30-3-2021
26.	Functional characteristics of sub-units of neuron	31-3-2021
27.	Membrane potential and ionic basis of resting membrane potential (RMP)	1-4-2021
28.	Nerve action potential	5-4-2021
29.	Excitation and propagation of impulse characteristics- latent period, refractiveness	6-4-2021
30.	Threshold level, All and none characteristics	7-4-2021
31.	Degeneration and regeneration of nerve fibre; Synaptic and junctional transmission	12-4-2021
32.	Functions of nervous system-reflexes-control of posture and movements	15-4-2021
33.	Autonomic nervous system and visceral control	19-4-2021
34.	Neurotransmitter, wakefulness, sleep cycle	20-4-2021
35.	Higher function of neurons system - learning, memory, electroencephalography	22-4-2021
36.	Eye: functional morphology, nourishment and protection neural pathway	26-4-2021
37.	Receptors- optics, ocular muscles and movements, photochemistry, Vision defects	27-4-2021
38.	Ear: Physiology of hearing and common hearing impairment	28-4-2021
39.	Vestibule apparatus; Physiology of olfaction and taste	29-4-2021
40.	Morphological characteristic of mono gastric and poly gastric digestive system	
41.	Prehension, Rumination, Defecation and Vomition	3-5-2021
42.	Regulation of secretory function of saliva, stomach, intestine, pancreas; bile secretion;hunger, appetite control	4-5-2021
43.	Regulation of secretory function of saliva, stomach, intestine, pancreas; bile secretion;hunger, appetite control	5-5-2021
44.	Regulation of secretory function of saliva, stomach, intestine, pancreas; bile secretion; hunger, appetite control	6-5-2021
45.	Regulation of secretory function of saliva, stomach, intestine, pancreas; bile secretion; hunger, appetite control	10-5-2021
46.	Developmental aspects of digestion	11-5-2021
47.	Luminous, membranous and microbial digestion in rumen and intestine	12-5-2021
48.	Luminous, membranous and microbial digestion in rumen and intestine	13-5-2021
	<b>First Internal Assessment Examination(Theory) <u>18.05.2021</u></b>	

49.	Permeability characteristics of intestine, forces governing absorption, Control of intestinal transport of electrolyte and water	20-5-2021
50.	Enzymatic digestion in monogastric	24-5-2021
51.	Enzymatic digestion in monogastric	25-5-2021
52.	Fermentative digestion in rumen	26-5-2021
53.	Fermentative digestion in rumen	27-5-2021
54.	Modification of toxic substances in rumen	1-6-2021
55.	Digestion in birds	2-6-2021
56.	Functional morphology of respiratory apparatus	3-6-2021
57.	Mechanics of breathing	7-6-2021
58.	Transport of blood gases, foetal and neonatal oxygen transport	8-6-2021
59.	Dissociation curves, pressures, recoil tendency, elasticity, surfactants, pleural liquid, compliance, exchanges of gases in lungs and tissues	9-6-2021
60.	Dissociation curves, pressures, recoil tendency, elasticity, surfactants, pleural liquid, compliance, exchanges of gases in lungs and tissues	10-6-2021
61.	Neural and chemical regulation of breathing, diffusion, perfusion, hypoxia	14-6-2021
62.	Neural and chemical regulation of breathing, diffusion, perfusion, hypoxia	15-6-2021
63.	Frictional resistance to air flow, airways smooth muscle contraction, respiratory musclework, panting	16-6-2021
64.	Adaptation of respiration during muscle exercise, high altitude hypoxia, Non-respiratory lung functions	17-6-2021
65.	Respiration in birds	21-6-2021
66.	Respiration in birds	22-6-2021
67.	Kidney- Functional morphology of nephrons	23-6-2021
68.	Factors determining filtration pressure	24-6-2021
69.	Determination of glomerular filtration rate (GFR) and renal plasma flow	28-6-2021
70.	Re-absorption mechanisms for glucose, protein, amino acids, electrolytes	29-6-2021
71.	Re-absorption mechanisms for glucose, protein, amino acids, electrolytes	30-6-2021
72.	Ammonium mechanism	1-7-2021
73.	Glomerulo-tubular balance	5-7-2021
74.	Methods of studying renal functions	6-7-2021
75.	Urine concentration; micturition, uremia	7-7-2021
76.	Fluid, water balance, fluid therapy, dehydration, water concentration mechanisms	8-7-2021
77.	Acidbase balance and H <sup>+</sup> regulation, correction and evolution of imbalances, total osmotic pressure	12-7-2021
78.	Formation and excretion of urine of birds	13-7-2021
79.	Formation and excretion of urine of birds	14-7-2021
80.	Cerebrospinal fluid, synovial fluids:- composition, formation and flow	15-7-2021
81.	Joints, Regulation of bone metabolism and homeostasis	19-7-2021
82.	Hormone cell interaction	20-7-2021

83.	Sub-cellular mechanisms; metabolism of hormones	22-7-2021
84.	Sub-cellular mechanisms- metabolism of hormones	26-7-2021
85.	Methods of study of endocrine system	27-7-2021
86.	Receptors- mechanism of regulation	28-7-2021
87.	Receptors- mechanism of regulation	29-7-2021
88.	Chemistry of hypothalamo- hypophyseal hormones	1-8-2021
89.	Chemistry of hypothalamo- hypophyseal hormones	4-8-2021
90.	Chemistry of hypothalamo- hypophyseal hormones	5-8-2021
91.	Target organ	10-8-2021
92.	Pineal gland	11-8-2021
93.	Thyroid gland	12-8-2021
	<b>Second Internal Assessment Examination (Theory) <u>17.08.2021</u></b>	
94.	Thymus gland, Pancreas	23-8-2021
95.	Adrenal gland	24-8-2021
96.	Prostaglandins; Hormones of calcium metabolism	25-8-2021
97.	Disorders of calcium metabolism;	26-8-2021
98.	Renin-angiotensin system	31-8-2021
99.	Atrial natriuretic factors, Erythropoietin	1-9-2021
100.	GI hormones	2-9-2021
101.	Pheromones	6-9-2021
102.	Genetic and endocrine control of gonadal development	7-9-2021
103.	Modification of gonadotrophin release, ovarian functions	8-9-2021
104.	Follicular development, sexual receptivity	9-9-2021
105.	Ovarian cycle; Reproductive cycles in farm animals	13-9-2021
106.	Post-partum ovarian activity	14-9-2021
107.	Ovum transport, capacitation, and fertilization	15-9-2021
108.	Hormones present in the biological fluids during pregnancy and their use for the diagnosis of pregnancy	20-9-2021
109.	Maternal, foetal and placental participation in pregnancy and parturition	21-9-2021
110.	Immunology of gestation, Preparturient endocrine status	22-9-2021
111.	Spermatogenic cycle and wave	23-9-2021
112.	Function of sertoli cell, leydig cell, semen – composition, evaluation	27-9-2021
113.	Testosterone - function and regulation – cryptorchidism	28-9-2021
114.	Puberty - photoperiod - uses of androgens, progestogens, estrogens	29-9-2021
115.	Functional and metabolic organization of mammary glands - structure and development	30-9-2021
116.	Effect of estrogens and progesterone; hormonal control of mammary growth	4-10-2021
117.	Lactogenesis and galctogenesis	5-10-2021
118.	Biosynthesis of milk constituents;	6-10-2021
119.	Secretion of milk, and metabolism	11-10-2021

120.	Prolactin and lactation cycle	12-10-2021
121.	Biochemical and genetic determinants of growth;	14-10-2021
122	Regulation of growth, metabolic and hormone interactions	18-10-2021
123.	Factors affecting efficiency of growth and production in ruminants and single stomach animals	20-10-2021
124.	Growth in meat producing animals and birds, growth curves	21-10-2021
125.	Recombinant gene transfer technologies for growth manipulation- advantages and limitations	25-10-2021
126.	Protein deposition in animals and poultry	26-10-2021
127.	Heat balance, heat tolerance, hypothermia,	27-10-2021
128	Hyperthermia, thermo-regulation in farm animals	28-10-2021
129.	Role of skin, responses of animals to heat and cold, fever	1-11-2021
130.	Body temperature and hibernation	2-11-2021
131.	Climatology- various parameters and their importance	3-11-2021
132.	Effect of different environmental variables like temperature, humidity, light, radiation, altitude on animal performance	8-11-2021
133.	Effect of different environmental variables like temperature, humidity, light, radiation, altitude on animal performance	9-11-2021
134.	Acclimation, acclimatization - general adaptive syndrome	10-11-2021
135	Acclimation, acclimatization - general adaptive syndrome	11-11-2021
136.	Clinical aspects of endocrine - reproductive functions	15-11-2021
137.	Neurophysiology of behaviours.	16-11-2021
138	Types of behaviour,	17-11-2021
139.	Communication and learning	18-11-2021
140	Memory behavioural plasticity	20-11-2021
	<b>Third Internal Assessment Examination (Theory) <u>23.11.2021</u></b>	

ANNUAL EXAMINATION

Papers	Units	Maximum marks	Weightage
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THEORY

Paper-I	1 and 2	100	20
Paper-II	3 and 4	100	20

PRACTICAL

Paper-I	1 and 2	60	20
Paper-II	3 and 4	60	20