

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

KHEDA, HINDAUN CITY, RAJASTHAN

LECTURE SCHEDULE: THEORY

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

VETERINARY BIOCHEMISTRY

Credit Hours: 2+1

w.e.f. 16-10-2024

Theory

Lecture duration: One hour

Name of teachers: Dr. Ankita Anil Killedar, Dr. Anuj Sharma and Dr. Nalini Kataria

UNIT-1 GENERAL VETERINARY BIOCHEMISTRY

Sr. No	DATE	TOPICS
1	18-10-2024	Scope and importance of Biochemistry
2	19-10-2024	Structure of Biological membranes and transport across membranes.
3	25-10-2024	Donnan membrane equilibrium, Dissociation of acids, pH, Buffer systems, and Henderson-Hasselbalch equation
4	26-10-2024	Biochemistry of Carbohydrates
5	01-11-2024	Biological significance of Important Monosaccharides (Ribose, glucose, fructose, galactose, mannose, and amino sugars)
6	08-11-2024	Disaccharides (maltose, isomaltose, lactose, sucrose, and cellobiose)
7	09-11-2024	Polysaccharides (starch, dextrans, dextrins, glycogen, cellulose, inulin, chitin)
8	16-11-2024	Mucopolysaccharides, including bacterial cell wall Polysaccharides.
9	22-11-2024	Biochemistry of Lipids
10	23-11-2024	Properties and biological significance of simple lipids.
11	29-11-2024	Compound and derived lipids and Lipo-proteins.
12	30-11-2024	Fat indices, structure and functions of prostaglandins.
13	06-12-2024	Biochemistry of proteins
14	07-12-2024	Classification, Structure, Properties - Biological significance of proteins.
15	13-12-2024	Amino acids: Structure and classification
16	14-12-2024	Physical and chemical properties of amino acids: amphoteric nature, optical activity, and peptide bond formation
17	20-12-2024	Biochemistry of nucleic acids
18	21-12-2024	Chemistry of purines and pyrimidines, nucleosides and nucleotides. Biological significance of nucleosides and nucleotides.
19	27-12-2024	Structure and functions of deoxyribonucleic acid (DNA) and a typical ribonucleic acid (RNA).

UNIT-2 INTERMEDIARY METABOLISM

SR.NO	DATES	TOPICS
20	28-12-2024	Enzymes: Definition and classification. Coenzymes, cofactors isoenzymes.
21	03-01-2025	Properties: Protein nature
22	04-01-2025	Enzyme-substrate complex formation
23	10-01-2025	Modern concept of active centre of enzyme
24	11-01-2025	Specificity of enzyme action: Substrate specificity, group specificity, stereo or optical specificity
25	17-01-2025	Factors influencing enzyme action: Effects of temperature, pH, concentration of substrate, and enzyme.
26	18-01-2025	Enzyme units: International units, katal turnover number & Specific activity
27	24-01-2025	Enzyme inhibition: Competitive, non-competitive, uncompetitive, and suicidal inhibition. Allosteric enzymes.
28	25-01-2025	Biological Oxidation: Enzymes and coenzymes involved in oxidation and reduction
29	01-02-2025	Respiratory chain or electron transport chain
30	07-02-2025	Oxidative phosphorylation.
31	08-02-2025	Inhibitors, uncouplers, and other factors influencing electron transport chain.
32	14-02-2025	Carbohydrates metabolism
33	15-02-2025	Glycolysis
34	21-02-2025	Kreb's cycle
35	22-02-2025	HMP shunt
36	28-02-2025	Gluconeogenesis, Cori cycle
37	01-03-2025	Glycogenesis
38	07-03-2025	Glycogenolysis
39	08-03-2025	Bioenergetics of carbohydrate metabolism
40	15-03-2025	Lipid metabolism
41	21-03-2025	Beta oxidation of fatty acids
42	22-03-2025	Ketone body formation
43	28-03-2025	Biosynthesis of fatty acids.
44	29-03-2025	Bioenergetics of lipid metabolism.
45	04-04-2025	Protein metabolism
46	05-04-2025	Biosynthesis of proteins
47	19-04-2025	Degradation of proteins: Deamination
48	25-04-2025	Transamination & Decarboxylation of Amino Acids
49	26-04-2025	Ammonia transport and urea cycle
50	02-05-2025	Nucleic acid metabolism
51	03-05-2025	Metabolism of purines and pyrimidines
52	09-05-2025	DNA biosynthesis and regulation
53	10-05-2025	RNA biosynthesis and regulation
54	16-05-2025	Regulation and Integration of metabolism

UNIT-3 VETERINARY ANALYTICAL BIOCHEMISTRY

S. No	Date	Topics
55	17-05-2025	Disorders of Carbohydrate Metabolism: Diabetes mellitus
56	23-05-2025	Ketosis, Bovine Ketosis, Pregnancy Toxemia, hypoglycaemia in baby pigs.
57	24-05-2025	Hyperinsulinism in Dogs. Hormone control of Carbohydrate metabolism and regulation of blood sugar.
58	30-05-2025	Biochemical tests for the detection of disturbance in carbohydrate metabolism.
59	31-05-2025	Plasma Proteins and clinical significance, Proteins and dysproteinaemias.
60	06-06-2025	Acute Phase Proteins
61	13-06-2025	Lipid Profile in disease diagnosis
62	14-06-2025	Clinical Enzymology: Diagnostic importance of non-functional plasma enzymes and Isoenzymes
63	20-06-2025	Liver function tests: Classification, Biochemical test for differential diagnosis.
64	21-06-2025	Biochemical tests of renal function: Urine analysis, Role of BUN, Uric acid and Creatinine in diagnosis.
65	27-06-2025	Disturbance in acid base balance and its diagnosis.
66	28-06-2025	Biochemistry of digestive disorders.
67	04-07-2025	Biochemistry of oxidative stress and shock.
68	05-07-2025	Biochemical basis of fluid therapy
69	11-07-2025	Detoxification in the body: Metabolism of xenobiotics
70	12-07-2025	General reactions for biotransformation of different groups of substances, Cytochrome 450 system of enzymes.
71	18-07-2025	Revision
72	19-07-2025	Revision
73	25-07-2025	Revision
74	26-07-2025	Revision
75	01-08-2025	Revision
76	02-08-2025	Revision
77	08-08-2025	Revision
78	09-08-2025	Revision
79	22-08-2025	Revision
80	23-08-2025	Revision
81	29-08-2025	Revision
82	30-08-2025	Revision
83	06-09-2025	Revision
84	12-09-2025	Revision
85	13-09-2025	Revision
86	19-09-2025	Revision
87	20-09-2025	Revision

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VETERINARY BIOCHEMISTRY

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Practical

Lecture duration: Two hours

Name of teachers: Dr. Ankita Anil Killedar, Dr. Anuj Sharma and Dr. Nalini Kataria

UNIT 1 (GENERAL VETERINARY BIOCHEMISTRY)

SR.NO	DATES	TOPICS
1	Batch-A 21-10-2024 Batch-B 22-10-2024 Batch-C 23-10-2024	Concentration of solutions and System International (S.I.) Units
2	Batch-A 28-10-2024 Batch-B 29-10-2024 Batch-C 30-10-2024	Preparation/ standardization of acids and alkalies
3	Batch-A 04-11-2024 Batch-B 05-11-2024 Batch-C 06-11-2024	Preparation of Buffers
4	Batch-A 11-11-2024 Batch-B 12-11-2024 Batch-C 13-11-2024	Titration curve of acid versus base
5	Batch-A 18-11-2024 Batch-B 19-11-2024 Batch-C 20-11-2024	Qualitative tests for Carbohydrates & Identification of unknown Carbohydrates
6	Batch-A 25-11-2024 Batch-B 26-11-2024 Batch-C 27-11-2024	Determination of acid number of an oil
7	Batch-A 01-12-2024 Batch-B 02-12-2024 Batch-C 03-12-2024	Colour reactions of proteins
8	Batch-A 09-12-2024 Batch-B 10-12-2024 Batch-C 11-12-2024	Precipitation reactions of proteins
9	Batch-A 16-12-2024 Batch-B 17-12-2024 Batch-C 18-12-2024	Estimation of Amino Acids (Sorensen's Method)

UNIT 2 (INTERMEDIARY METABOLISM)

Sr. No	DATE	TOPICS
10	Batch-A 23-12-2024 Batch-B 24-12-2024 Batch-C 25-12-2024	Effect of temperature and pH on enzyme activity
11	Batch-A 30-12-2024 Batch-B 31-12-2024 Batch-C 01-01-2025	Estimation of blood or plasma Glucose
12	Batch-A 06-01-2025 Batch-B 07-01-2025 Batch-C 08-01-2025	Estimation of Protein
13	Batch-A 13-01-2025 Batch-B 14-01-2025 Batch-C 15-01-2025	Estimation of Inorganic Phosphate
14	Batch-A 20-01-2025 Batch-B 21-01-2025 Batch-C 22-01-2025	Estimation of Calcium
15	Batch-A 27-01-2025 Batch-B 28-01-2025 Batch-C 29-01-2025	Estimation of Magnesium
16	Batch-A 03-02-2025 Batch-B 04-02-2025 Batch-C 05-02-2025	Estimation of Ascorbic acid by the Dichlorophenolindophenol (DCPIP) method
17	Batch-A 10-02-2025 Batch-B 11-02-2025 Batch-C 12-02-2025	Estimation of milk lactose by Benedicts quantitative method
18	Batch-A 17-02-2025 Batch-B 18-02-2025 Batch-C 19-02-2025	Estimation of sodium by flame photometer
19	Batch-A 24-02-2025 Batch-B 25-02-2025 Batch-C 26-02-2025	Estimation of potassium by flame photometer
20	Batch-A 03-03-2025 Batch-B 04-03-2025 Batch-C 05-03-2025	Paper Chromatography of amino acids
21	Batch-A 10-03-2025 Batch-B 11-03-2025 Batch-C 12-03-2025	Thin Layer Chromatography of amino acids
22	Batch-A 17-03-2025 Batch-B 18-03-2025 Batch-C 19-03-2025	Estimation of Vitamin A by colorimetry

UNIT 3 (VETERINARY ANALYTICAL BIOCHEMISTRY)

Sr. No	DATE	TOPICS
23	Batch-A 24-03-2025 Batch-B 25-03-2025 Batch-C 26-03-2025	Detection of pathological constituents in urine
24	Batch-A 31-03-2025 Batch-B 01-04-2025 Batch-C 02-04-2025	Assay of ALT in serum
25	Batch-A 07-04-2025 Batch-B 08-04-2025 Batch-C 09-04-2025	Assay of AST in serum
26	Batch-A 14-04-2025 Batch-B 15-04-2025 Batch-C 16-04-2025	Acute phase proteins (A or G Ratio)
27	Batch-A 21-04-2025 Batch-B 22-04-2025 Batch-C 23-04-2025	Estimation of total serum cholesterol
28	Batch-A 28-04-2025 Batch-B 29-04-2025 Batch-C 30-04-2025	Blood urea nitrogen
29	Batch-A 07-04-2025 Batch-B 08-04-2025 Batch-C 09-04-2025	Estimation of creatinine
30	Batch-A 05-05-2025 Batch-B 06-05-2025 Batch-C 07-05-2025	Estimation of serum bilirubin (Direct)
31	Batch-A 12-05-2025 Batch-B 13-05-2025 Batch-C 14-05-2025	Estimation of serum bilirubin (Indirect)
32	Batch-A 12-05-2025 Batch-B 13-05-2025 Batch-C 14-05-2025	Estimation of serum bilirubin (Total)
33	Batch-A 12-05-2025 Batch-B 13-05-2025 Batch-C 14-05-2025	Principles of various diagnostic tests,
34	Batch-A 12-05-2025 Batch-B 13-05-2025 Batch-C 14-05-2025	Normal and abnormal values in different species,
35	Batch-A 12-05-2025 Batch-B 13-05-2025 Batch-C 14-05-2025	Differential diagnosis, correlating with diseases and rationale of arriving at the conclusion need to be rediscussed in detail during Final Professional in the course VETERINARY CLINICAL PRACTICES-II, Diagnostic Laboratory Section.
36	Batch-A 19-05-2025 Batch-B 20-05-2025 Batch-C 21-05-2025	Revision
37	Batch-A 26-05-2025 Batch-B 27-05-2025 Batch-C 28-05-2025	Revision
38	Batch-A 02-06-2025	Revision

	Batch-B 03-06-2025 Batch-C 04-06-2025	
39	Batch-A 09-06-2025 Batch-B 10-06-2025 Batch-C 11-06-2025	Revision
40	Batch-A 16-06-2025 Batch-B 17-06-2025 Batch-C 18-06-2025	Revision
41	Batch-A 23-06-2025 Batch-B 24-06-2025 Batch-C 25-06-2025	Revision
42	Batch-A 30-06-2025 Batch-B 01-07-2025 Batch-C 02-07-2025	Revision
43	Batch-A 07-07-2025 Batch-B 08-07-2025 Batch-C 09-07-2025	Revision
44	Batch-A 14-07-2025 Batch-B 15-07-2025 Batch-C 16-07-2025	Revision
45	Batch-A 21-07-2025 Batch-B 22-07-2025 Batch-C 23-07-2025	Revision
46	Batch-A 28-07-2025 Batch-B 29-07-2025 Batch-C 30-07-2025	Revision
47	Batch-A 04-08-2025 Batch-B 05-08-2025 Batch-C 06-08-2025	Revision
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