

Academic:

1. Degree Offered –UG, PG, PhD

Title of degree: UG,PG

Duration:

Eligibility Criteria:

Intake Capacity:2

Opportunities: Academic and Research, biotechnology sector jobs

2. Academic Regulations:

UG , PG, PhD (VCI, ICAR, IV, V Dean's and Corrigendum) – PDF Copies

3. Admissions:

UG, PG, PhD

List of Admitted Students – First Year to Final Year (Veterinary Year wise / Fishery and Dairy Semester wise):

Sr. No.	Name of Student	Enrl. No.	Email Address	Name of Advisor
1	Shubham Sudhir Gawade	V/14/072	Shubhamgawade513@gmail.com	Dr.S.N Jadhav

4. Course offered :: UG, PG , PhD - Semester / Year wise

- List of UG Courses (B.V.Sc & AH) As per latest MSVE Guidelines) , B.Tech. (D.T.) and B.F.Sc as per ICAR – V Deans Committee – 2016.

Sr No	Course No.	Title	Credit	Course offered in the Year
1	VBC Unit I ,	General Veterinary Biochemistry	2 +1=3	IIInd
2	VBC Unit II	Veterinary Intermediary Metabolism		
3	VBC Unit III	Clinical biochemistry of Animals		
4	VCP I	Veterinary Clinical Practices I	0+5=5	IIIrd
5	VCP II	Veterinary Clinical Practices II	0+5=5	IVth

- List of PG Courses (MVSc) and M.Tech. (Dairy Technology)

Sr No	Course No .	Title	Credit	Semester

5. Lecture Schedule – UG, PG , PhD - Theory / Practical Schedule – Approved by BoS – Subject wise

UNIT I (GENERAL VETERINARY BIOCHEMISTRY)

Lecture schedule

- 1 Scope and importance of Biochemistry.
- 2 Structure of cell membranes and transport across cell membrane. Donnan membrane equilibrium
- 3 Dissociation of acids, pH, Buffer system; and Henderson-Hasselbalch equation
- Biochemistry of Carbohydrates:**
- 4 Biological significance of Monosaccharides (ribose, glucose, fructose, galactose, mannose, aminosugars).
- 5 Disaccharides (maltose, isomaltose, lactose, sucrose and cellobiose).
- 6 Polysaccharides (starch, dextrans, glycogen, cellulose, inulin, chitin) Mucopolysaccharides including bacterial cell wall polysaccharides.
- Biochemistry of Lipids:**
- 7-8 Properties and biological significance of simple lipids, compound lipids and derived lipids and lipoproteins.
- 9 Fat indices, Structure and functions of prostaglandins.
- Biochemistry of proteins :**
- 10 Classification, Structure, Properties - Biological significance of proteins.
- 11 Amino acids : Structure and classification
- 12 Physical and chemical properties of amino acids - amphoteric nature, optical activity and peptide bond formation
- Biochemistry of nucleic acids:**
- 13 Chemistry of purines and pyrimidines, nucleosides and nucleotides. Biological significance of nucleosides and nucleotides.
- 14 Structure and functions of deoxyribonucleic acid (DNA) and typical ribonucleic acid (RNA).
- 15 Revision

UNIT II (INTERMEDIARY METABOLISM)

Lecture Schedule

- 1 Enzymes : Definition and classification. Coenzymes, cofactors & isoenzymes.
- 2 Properties : Protein nature, Enzyme units: International units, katal, turnover number & Specific activity.
- 3 Enzyme-substrate complex formation
- 4 Modern concept of active centre of enzyme
- 5 Specificity of enzyme action: substrate specificity, group specificity, stereo specificity, optical specificity.
- 6 Factors influencing enzyme action : Effects of temperature, pH, concentration of substrate and enzyme.
- 7 Enzyme inhibition : Competitive, non - competitive, uncompetitive and suicidal inhibition, Allosteric enzymes.

- 8 Biological Oxidation: Enzymes and coenzymes involved in oxidation and reduction
- 9 Respiratory chain/ electron transport chain, oxidative phosphorylation,
- 10 Inhibitors, uncouplers and other factors influencing electron transport chain.

Carbohydrate metabolism:

- 11 Glycolysis
- 12 Kreb's cycle
- 13 HMP shunt
- 14 Gluconeogenesis, Cori cycle,
- 15 Glycogenesis
- 16 Glycogenolysis,
- 17 Bioenergetics of Carbohydrate metabolism

Lipid metabolism:

- 18-19 Beta oxidation of fatty acid, Ketone body formation
- 20 Biosynthesis of fatty acids.
- 21 Bioenergetics of lipid metabolism.

Protein metabolism:

- 22 Biosynthesis of proteins
- 23 Degradation of proteins. Deamination, Transamination & Decarboxylation of amino acids
- 24 Ammonia transport and urea cycle

Nucleic acids:

- 25 Metabolism of purines and pyrimidines
- 26-27 DNA & RNA biosynthesis and regulation
- 28 Regulation and Integration of metabolism
- 29 Revision

UNIT III (VETERINARY CLINICAL BIOCHEMISTRY)

Lecture Schedule

- 1 Disorders of Carbohydrate Metabolism: Diabetes mellitus, hyperinsulinism in Dogs
- 2 Ketosis, Bovine Ketosis, Pregnancy toxemia, hypoglycaemia in baby pigs,
- 3 Hormonal control of carbohydrate metabolism and regulation of blood sugar.
- 4 Biochemical tests for the detection of disturbance in carbohydrate metabolism.
- 5 Plasma Proteins and clinical significance, Proteins and Dysproteinemias,.
- 6 Acute Phase proteins
- 7 Lipid Profile in disease diagnosis
- 8 Clinical Enzymology - Diagnostic importance of non-functional plasma enzymes and Isoenzymes
- 9 Liver function tests - Classification - Biochemical tests for differential diagnosis.
- 10 Biochemical tests of renal function - Urine analysis - Role of BUN, Uric acid and Creatinine in diagnosis.
- 11 Disturbance in acid base balance and its diagnosis.
- 12 Biochemistry of digestive disorders.
- 13 Biochemistry of oxidative stress and shock.

- 14 Biochemical basis of fluid therapy.
- 15 Detoxification in the body: Metabolism of xenobiotics, General reactions for biotransformation of different groups of substances, Cytochrome p450 system of enzymes.
- 16 Revision

PRACTICAL

UNIT I (GENERAL VETERINARY BIOCHEMISTRY)

- 1 Concentration of solutions and system International (S.I.) Units
- 2 Preparation/ standardization of acids and alkalies; Titration curve of acid versus base
- 3 Preparation of Buffers
Identification of unknown carbohydrates
- 4 Qualitative test for Monosaccharides
- 5 Qualitative test for Disaccharides
- 6 Qualitative test for Polysaccharides
- 7 Determination of acid number of an oil
- 8 Precipitation reactions of proteins
- 9 Colour reactions of proteins
- 10 Estimation of amino acids (Sorensen's Method)

UNIT II (INTERMEDIARY METABOLISM)

- 1 Effect of temperature and pH on enzyme activity
- 2 Estimation of blood/plasma Glucose
- 3 Estimation of serum Protein
- 4 Estimation of serum Inorganic phosphate
- 5 Estimation of serum Calcium
- 6 Estimation of serum Magnesium
- 7 Estimation of Ascorbic acid by Dichlorophenolindophenol (DCPIP) method
- 8 Estimation of milk lactose by Benedicts quantitative method
- 9 Estimation of sodium and potassium by flame photometer
- 10 Paper / thin layer Chromatography of amino acids (Demonstration)
- 11 Estimation of Vitamin A by colorimetry

UNIT III (VETERINARY CLINICAL BIOCHEMISTRY)

- 1 Detection of Pathological Constituents in Urine

- 2 Assay of ALT in Serum
- 3 Assay of AST in Serum
- 4-5 Acute phase proteins (A/G Ratio)
- 6 Estimation of Total Serum Cholesterol
- 7 Estimation of Blood Urea Nitrogen
- 8 Estimation of Serum Creatinine
- 9 Estimation of serum bilirubin (Direct, Indirect and Total)

6. Teaching Schedule :UG, PG , PhD - Prepared by – Course Teacher – Year wise / Course Wise

7. Academic Calendar – UG, PG, PhD -Year wise / Semester Wise

8. College Classes Time Table :UG, PG , PhD - Year wise / Semester Wise

9. Examination Time Table – UG, PG , PhD - Semester / Year wise - Theory and Practical

10. Result –UG, PG , PhD - Semester Wise / Year Wise