FACULTY OF LIFE SCIENCES

SYLLABUS

For

Bachelor of Science (Honours) Biotechnology
Semester III
(Under Credit Based Continuous Evaluation Grading System)

Session: 2026-27

The Heritage Institution

KANYA MAHA VIDYALAYA
JALANDHAR
(Autonomous)

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SCHEME AND CURRICULUM OF EXAMINATION OF FOUR YEAR UNDER GRADUATE DEGREE PROGRAMME

Session-2026-27

Bachelor of Science (Honours) Biotechnology Semester -III									
Course Code	**Course Title**	**Course Type**	**Paper Credits L-T-P**	**Hours per week L-T-P**	**Total Marks**	**Marks**			**Exam Time in Hrs**
						L	**P**	**CA**	
BBTM-3484	Zoology	MSC	3-0-1	3-0-2	100	50	20	30	3+3

Bachelor of Science (Honours) Bio-Technology Semester-III

Session: 2026-27

Course Title: Zoology

Course Code: BBTM-3484

(Theory)

COURSE OUTCOMES

After passing this course the student will be able to:

- CO1: Understand the general classification of Kingdom Animalia.
- CO2: Understand the digestive system, respiratory system of man.
- CO3: Understand the excretory and circulatory system of man.
- CO4: Understand the skeletal system, neural integration and endocrine system of man.

Bachelor of Science (Honours) Bio-Technology Semester-III

Session: 2026-27

Course Title: Zoology

Course Code: BBTM-3484

(Theory)

Time: 3 Hrs. **Max. Marks: 100**

L-T-P: 3-0-1 **Theory: 50**

Practical: 20

CA: 30

Instructions for the Paper Setters: Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Unit-1

Introduction to Animal Kingdom and its diversification:

Overview and General classification of Kingdom Animalia, General Characteristics of each group upto class level with an example.

Unit-II

Digestive System: The alimentary canal and associated glands of Man. Digestion of dietary constituents, regulation of digestive processes and absorption. Extra and intracellular digestion, enzymatic digestion and symbiotic digestion.

Respiratory System: Respiratory system of man, Transport of O_2 and CO_2, Oxygen dissociation curve of haemoglobin, Bohr effect, chloride shift, Haldane effect and control of breathing.

Unit-III

Circulatory System: General plan of circulation in Man, structure of human heart. Origin and regulation of heart beat, Electrocardiogram, Cardiac output and Blood pressure, Composition and functions of blood and lymph, Blood clotting, blood groups including Rh-factor.

Excretory system: Structure of Kidney and nephron. Urine formation and osmoregulation.

Unit-IV

Skeletal system: Ultrastructure, chemical and physical basis of skeletal muscle contraction.

Neural Integration: Structure and functions of brain, Structure of neuron, resting membrane potential, Origin and propagation of impulse along the axon, synapse and myoneural junction.

Endocrine System: Structure and physiology of thyroid, parathyroid, adrenal, hypothalamus, pituitary, pancreas and gonads of man.

Suggested Readings:

1. Sobti, R.C. & Nigam, S.K. (2002). Structural & function biology of chordates, VishalPublishers, Jalandhar.

2. Sobti, R.C. & Sharma, V.L. (2005). Basics of Biotechnology: Introduction of LifeSciences. Vishal Publishers, Jalandhar.

3. Sobti, R.C. (2005). Introduction to Biotechnology, Part-2, Concepts Tools andApplication, Vishal Publishers.

Bachelor of Science (Honours) Bio-Technology Semester-III

Session: 2026-27

Course Title: Practical (Zoology)

Course Code: BBTM-3484 (P)

(Practical)

COURSE OUTCOMES

After passing this course the student will be able to:

- CO1: Understand the estimation of blood haemoglobin
- CO2: Familiarize with the various systems of mammals such as digestive, arterial, venous and urinogenital systems.
- CO3: The students will be able to record blood pressure and blood groups.
- CO4: Analyse the food stuff for the presence of starch, protein and fats.

Bachelor of Science (Honours) Bio-Technology Semester-III

Session: 2026-27

Course Title: Practical (Zoology)

Course Code: BBTM-3484 (P)

(Practical)

Time: 3 Hrs. **Practical: 20**

Credit: 0-0-1

Note: The question paper will be set by the examiner based on the syllabus.

1. Study the following system of mammals with the help of charts / models /videos:

   Digestive, Arterial, Venous and Urinogenital systems.

2. Analysis of food stuff for the presence of starch, protein and fats.

3. Determination of blood groups of human blood samples.

4. Recording of blood pressure of man.

5. Estimation of hemoglobin content.

6. Make a temporary preparation of the following:

   Blood smear of mammals.

7. Visit to clinical laboratory / hospital for demonstration of ECG, ECHO, X-ray, ultrasound, CT-scan and MRI.