

Class-XI
Sub : Biology (Theory)

Time : 03 hours.

Max. Marks-70

Course Structure (2023-24)

Unit	Title	Marks
I	Diversity of Living Organisms	15
I	Structural organization in plants and animal	10
II	Cell : Structure and Function.	15
IV	Plant physiology	12
V	Human physiology	18
Total		70

Half-yearly Examination, 2022-2023

Table : Blue Print of Distribution of Marks. (Half Yearly Exam)

Unit	Chapter	Contents	MCQ (1)	VSA (1)	SA 1 (2)	SA-I (3)	LA (4)	LA-II (5)	Total Marks
I	1.	Living world	-	1x1	2x1	-	-	-	3
	2.	Biological Classification	1x1	1x1	-	-	4x1	-	6
	3.	Plant Kingdom	1x1	1x1	2x2	3x1	-	-	9
	4.	Animal Kingdom	1x1	1x1	2x1	3x1	-	-	7
II	5.	Morphology of Flowering plant, Description of family Solanaceae Only	1x2	1x1	-	-	-	5x1	8
	6.	Anatomy of flowering plants	1x1	-	2x1	-	4x1	-	7
	7.	Structural organisation in Animals	1x1	1x1	-	3x1	-	-	5
III	8.	Cell: Unit of life	1x1	-	2x1	3x1	4x1	-	10
	9.	Biomolecules	1x1	1x2	2x1	-	-	-	5
	10.	Cell cycle and cell division and their Significance	1x1	1x2	2x1	-	-	5x1	10
Total No. 37 Total Marks			1x10 (10)	1x10 (10)	2x8 (16)	3x4 (12)	4x3 (12)	5x2 (10)	70

NB : Question Setter will include 2 Nos "OR" questions in LA1 Section and another, 2 Nos "OR" Questions in LA II Section.

* "OR" Question must be selected from same chapter/unit of syllabus. (2023-24)

TBSE
Class - XI
Subject : Biology
Annual Examination, 2022-2023

Table : Blue Print of Distribution of Marks.

Unit	Chapter	Contents	MCQ (1)	VSA (1)	SA 1 (2)	SA-II (3)	LA I (4)	LA-II (5)	Total Marks
IV	13.	Photo synthesing in higher plants	1x1	1x2	2x1	3x1	4x1	-	12
	14.	Respiratin in plants	1x1	1x2	2x2	-	-	5x1	12
	15.	Plant Growth & Development.	1x2	1x2	2x1	-	-	-	6
V	17.	Breathing and exchange of gases	1x1	-	2x1	3x1	-	-	6
	18.	Body fluid and Circulation	1x1	1x1	-	3x1	-	5x1	10
	19.	Excretory Product and their Elimination	1x1	1x1	-	-	4x1	-	6
	20.	Locomotion and Movement	1x1	1x1	2x1	-	-	-	4
	21.	Neural control and Co-ordination	1x1	-	2x1	-	4x1	-	7
	22.	Chemical Co-ordination	1x1	1x1	2x1	3x1	-	-	7
		Total Marks.		1x10 (10)	1x10 (10)	2x8 (16)	3x4 (12)	4x3 (12)	5x2 (10)
	Total Question		10	10	8	4	3	2	37

NB : Question Setter will include 2 Nos "OR" questions in LA1 Section and another, 2 Nos "OR" Questions in LA II Saction.

* "OR" Question must be selected from same chapter/unit of syllabus. (2023-24)

Sub: BIOLOGY, (Theory),

Marks -70

Syllabus of class XI (2023-2024)

Unit-I Diversity of Living organism.

Chapter 1: The Living. World.

Biodiversity: Need for Classification , three domains of life: Taxonomy and Systematics; concept of species and taxonomical hierarchy; binomial nomenclature.

Chapter-2: Biological classification

Five Kingdom clarification, Salient. features and classification of Monera, Protista and fungi into major groups, Lichens, viruses and viroids-

Chapter-3 : plant Kingdom

Classification of plants into major groups, Salient and distinguishing features. and a few examples of Algae, Bryophyta, pteridophyta, Gymnospermae (Angiosperms plants life cycle and alternation of generation excluded during 2023-2024)

Chapter-4 : Animal Kingdom.

Salient features and classification of animals, non-chordates upto phyla, Level and Chordates upto class level (Salient features and at a few example of each category) *No live animals or specimen Should be displayed.

Unit-II Structural organisation in plants and Animals

Chapter-5 : Morphology of flowering plants Morphology of different parts of flowering plants; Root, Stem, Leaf, inflorescence, flower, fruit, Seed. Description of family Solanaceae Only

(* Fabaceae and Liliaceae excluded)

Chapter-6: Anatomy of Flowering plants

Anatomy and functions of tissue system in dicots and Monocots.

Chapter-7: Structural Organisation in Animals Morphology, Anatomy and functions of digestive, Circulatory, respiratory, nervous and reproductive system of Frog only. (* Earthworm and cockroach excluded).

Unit-III : Cell structure and function

Chapter 8 : Cells the unit of Life.

Cell theory and cell as a basic unit of life, structure of prokaryotic and Eukaryotic Cells; plant cell, and animal cell, Cell envelope, Cell membrane cell wall, Cell organelles - structure and functions of Endomembrane system, Endoplasmic reticulum, golgi bodies. Lysosomes, vacuoles, mitochondria, ribosomes, plastids, microbodies, Cytoskeleton, Cilia, flagella, Centrioles (ultrastructure and function), Nucleus.

Chapter-9 : Biomolecules.

Chemical Structure of Living Cells: Biomolecules structure and function of proteins, Carbohydrates, Lipids, and nucleic acids; Enzyme- types, properties, enzyme action. (* Nature of bond Linking monomers in a polymer, Dynamic state of body Constitution- Constituents-Concept of Metabolism, Metabolic Basis of Living, The Living" state excluded).

Chapter-10 : Cell cycle and cell division:

Cell cycle, Mitosis, meiosis and their Significance. UNIT-IV. Human Physiology

Chapter-11 : Photosynthesis in higher plants

Photosynthesis as a means of autotrophic nutrition; site of photosynthesis pigments involved in photosynthesis (elementary idea); photo chemical and biosynthetic phases of photosynthesis; cyclic and non-cyclic photophosphorylation. Chemiosmotic hypothesis; photorespiration; C₃ and C₄ pathways, factors affecting. photosynthesis.

Chapter-14 : Respiration in plants.

Exchange of gases; Cellular respiration -Glycolysis, fermentation (anaerobic), TCA Cycle and Electron transport system (aerobic); energy relations-Number of ATP molecules generated, amphibolic Pathways; respiratory quotient.

Chapter 15 : Growth and development

Seed germination, phases of plant growth and plant growth rate, Conditions of growth differentiation, dedifferentiation and Redifferentiation; Sequence of developmental Process in a plant cell; plant growth regulators - auxin, Gibberellin, Cytokinin, ethylene, ABA.

Unit-V - Human physiology.

Chapter-17 Breathing and exchange of gases.

Respiratory Organ & Animals (recall only) Respiratory system in humans, Mechanism of Breathing and its regulations in humans-exchange of gases, transport of gases and regulation of respiration, respiratory volume; disorder related to respiration-asthma, emphysema, occupational respiratory disorder

Chapter-18 : Body fluid and Circulation.

Composition of blood, blood groups, Coagulation of blood; Composition of Lymph and its function; human Circulatory system -structure of heart and blood vessels, Cardiac Cycle, ECG, double Circulation, regulation of cardiac activity; disorder of Circulatory system - hypertension, Coronary artery diseases, angina pectoris, heart failure.

Chapter-19 : Excretory products and their Elimination.

Modes of Excretion - ammonotelism, Ureotelism, human excretory system- Structure and function; Urine formation, osmoregulation; regulation of Kidney function - renin, angiotensin, atrial natriuretic factor, ADH, and diabetes insipidus; role of other organ in excretion disorders Uremia, renal failure, renal Calculi, nephritis, dialysis.

Chapter-20 : Locomotion and Movement.

Types of movement-ciliary, flagellar, muscular, Skeletal muscle, contractile proteins and muscle contraction, Skeletal System and its functions, joints, disorders of muscular and Skeletal System - myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout.

Chapter-21: Neural Control and co-ordination

Neuron and Nerves; Nervous system in humans-Central, peripheral and Visceral nervous system; generation and Conduction of Nerve impulse. (* sense organ; Eye and EAR excluded)

Chapter-22 : Chemical Co-ordination and Integration:

Endocrine glands and hormones, human endocrine system-hypothalamus, Pituitary, pineal, thyroid, parathyroid, adrenal, pancreas, gonads; Mechanism of hormone action (Elementary idea); dwarfism, acromegaly, Cretinism, goiter, exophthalmic goitre, diabetes.

Class : XI
Subject: Biology Practical
2023-24

Evaluation Scheme		Marks
One Major Experiment Part A (Experiment No. 1, 3, 7 & 8)		6 Marks
One Minor Experiment Part A (Experiment No. 6, 9, 10, 11, 12 & 13)		5 Marks
One slide Preparation Part A (Experiment No. 2, 4 & 5)		5 Marks
Spotting Part B		4 Marks
Viva		2 Marks
Lab note books		3 marks
Attendance		5 marks
TOTAL		30 MARKS

A: List of Experiments

1. Study and describe locally available common flowering plants, from family Solanaceae (Poaceae, Asteraceae or Brassicaceae can be substituted in case of particular geographical location) including dissection and display of floral whorls, anther and ovary to show number of chambers (floral formulae and floral diagrams), type of root (tap and adventitious); type of stem (herbaceous and woody); leaf (arrangement, shape, venation, simple and compound).
2. Preparation and study of T.S. of dicot and monocot roots and stems (primary).
3. Study of osmosis by potato osmometer.
4. Study of plasmolysis in epidermal peels (e.g. Rhoeo/lily leaves or flashy scale leaves of onion bulb).
5. Study of distribution of stomata on the upper and lower surfaces of leaves.
6. Comparative study of the rates of transpiration in the upper and lower surfaces of leaves.
7. Test for the presence of sugar, starch, proteins and fats in suitable plant and animal materials.
8. Separation of plant pigments through paper chromatography.
9. Study of the rate of respiration in flower buds/leaf tissue and germinating seeds.
10. Test for presence of urea in urine.
11. Test for presence of sugar in urine.
12. Test for presence of albumin in urine.
13. Test for presence of bile salts in urine.

B. Study and Observe the following (spotting):

1. Parts of a compound microscope.
2. Specimens/slides/models and identification with reasons - Bacteria, *Oscillatoria*, *Spirogyra*, *Rhizopus*, mushroom, yeast, liverwort, moss, fern, pine, one monocotyledonous plant, one dicotyledonous plant and one lichen.
3. Virtual specimens/slides/models and identifying features of - *Amoeba*, *Hydra*, liverfluke, *Ascaris*, leech, earthworm, prawn, silkworm, honey bee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit.
4. Mitosis in onion root tip cells and animals' cells (grasshopper) from permanent slides.
5. Different types of inflorescence (cymose and racemose).
6. Human skeleton and different types of joints with the help of virtual images/models only.