

**Biology (XI)**  
**Code No. (044)**  
**Session – 2021-22**

**Annual Examination March/April, 2022**

**Max .Marks - 35**

Theory	EVALUATION SCHEME	
Unit		Marks
II	* Structural Organisation in Animals (Animal Tissues only) : Chapter 7	2
III	* Cell : The Unit of Life - Chapter 8 * Biomolecules – Chapter 9	05
	Cell: Structure and Function : Chapter-10	04
IV	Plant Physiology: Chapter 13,14 and 15	9
V	Human Physiology : Chapter 17, 18, 19, 20, 21 and 22	15
	Total	35

**\* Topics from Term-I**

**Chapter-7: Structural Organization in Animals**

Animal tissues.

**Unit-III Cell: Structure and Function**

**Chapter-8: Cell-The Unit of Life**

Cell theory and cell as the 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 function; endomembrane system, endoplasmic reticulum, golgi bodies, lysosomes, vacuoles, mitochondria, ribosomes, plastids, microbodies; cytoskeleton, cilia, flagella, centrioles (ultrastructure and function); nucleus.

**Chapter-9: Biomolecules**

Chemical constituents of living cells: biomolecules, structure and function of proteins, carbohydrates, lipids, nucleic acids; Enzymes- types, properties, enzyme action.

### Unit-III Cell: Structure and Function

#### **Chapter-10: Cell Cycle and Cell Division**

Cell cycle, mitosis, meiosis and their significance

### Unit-IV Plant Physiology

#### **Chapter-13: Photosynthesis in Higher Plants**

Photosynthesis as a means of autotrophic nutrition; site of photosynthesis, pigments involved in photosynthesis (elementary idea); photochemical 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: Plant - Growth and Development**

Growth regulators - auxin, gibberellin, cytokinin, ethylene, ABA.

### Unit-V Human Physiology

#### **Chapter-17: Breathing and Exchange of Gases**

Respiratory organs in animals (recall only); Respiratory system in humans; mechanism of breathing and its regulation in humans - exchange of gases, transport of gases and regulation of respiration, respiratory volume; disorders related to respiration - asthma, emphysema, occupational respiratory disorders.

#### **Chapter-18: Body Fluids and Circulation**

Composition of blood, blood groups, coagulation of blood; composition of lymph and its function; human circulatory system - Structure of human heart and blood vessels; cardiac cycle, cardiac output, ECG; double circulation; regulation of cardiac activity; disorders of circulatory system - hypertension, coronary artery disease, angina pectoris, heart failure.

#### **Chapter-19: Excretory Products and their Elimination**

Modes of excretion - ammonotelism, ureotelism, uricotelism; 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 organs in

excretion; disorders - uremia, renal failure, renal calculi, nephritis; dialysis and artificial kidney, kidney transplant.

### **Chapter-20: Locomotion and Movement**

Skeletal muscle, contractile proteins and muscle contraction.

### **Chapter-21: Neural Control and Coordination**

Neuron and nerves; Nervous system in humans - central nervous system; peripheral nervous system and visceral nervous system; generation and conduction of nerve impulse.

### **Chapter-22: Chemical Coordination and Integration**

Endocrine glands and hormones; human endocrine system - hypothalamus, pituitary, pineal, thyroid, parathyroid, adrenal, pancreas, gonads; mechanism of hormone action (elementary idea); role of hormones as messengers and regulators, hypo - and hyperactivity and related disorders; dwarfism, acromegaly, cretinism, goiter, exophthalmic goiter, diabetes, Addison's disease.

**Note:** Diseases related to all the human physiological systems to be taught in brief.

## **PRACTICALS**

**Max. Marks: 15 for Term-II**

<b>Evaluation Scheme</b>		
	<b>Term-II</b>	<b>Marks</b>
<b>Part I</b>		
One Major Experiment	Experiment No. - 1, 2	<b>4</b>
One Major Experiment	Experiment No. - 3, 4 & 5	<b>3</b>
<b>Part B</b>		
Spotting (3 Spots of 1 Mark each)	B. 1 & 2	<b>3</b>
<b>Practical Record + Investigatory Project &amp; Record +Viva Voce</b>		<b>5</b>
<b>Total</b>		<b>15</b>

**Practicals should be conducted alongside the concepts taught in theory classes.**

### **A: List of Experiments**

1. Separation of Plant pigments through paper chromatography.
2. Study of distribution of stomata in the upper and lower surfaces of leaves.
3. Study of the rate of respiration in flower buds/leaf tissue and germinating seeds.
4. Test for presence of sugar in urine.
5. Test for presence of albumin in urine.

**B. Study/Observation of the following (spotting) :**

- B.1. Tissues and diversity in shape and size of animal cells (squamous epithelium, smooth, skeletal and cardiac muscle fibers and mammalian blood smear) through temporary/permanent slides.
- B.2. Mitosis in onion root tip cells and animals cells (grasshopper) from permanent slides.

**Practical Examination for Visually Impaired Students Class XI**

**Note:** The 'Evaluation schemes' and 'General Guidelines' for visually impaired students as given for Class XII may be followed.

**Practicals should be conducted alongside the concepts taught in theory classes.**

**A. Items for Identification/Familiarity with the apparatus /equipments/animal and plant material / chemicals etc. for assessment in practicals (All experiments)**

- Mushroom, Succulents such as *Aloe vera/Kalanchoe*, Raisins, Potatoes.
- Honey comb, Mollusc shell, Model of cockroach, Pigeon and Star fish.
- Chromatography paper, Chromatography chamber, Alcohol.

**B. List of Practicals:**

1. Identify the given specimen of a fungus – Mushroom, gymnosperm-pine cone.
2. Study honey-bee/butterfly, snail shell, Starfish, Pigeon (through models).

**Note:** The above practicals may be carried out in an experiential manner rather than recording observations.