Chapter-1 The Living World

2023

2 marks Question

1. **What is binomial nomenclature ? Who proposed the term binomial nomenclature?**

2024

MCQ

1. In Rosa indica,the word Rosa is a: a)Genus b)Species c) Phylum d) Order

2.Write a short note on Zoological park and Herbarium . (2)

2025

1. **List the rules of scientific names. (2)**
2. **Give the botanical name of an edible mushroom. (1)**

Chapter-2 Biological Classification

2021

MCQ

1. **Red colour of red algae is due to: a)Chlorophyll b b) R-phycoerythrin c) Xanthophylls d) Carotenoids**
2. **Define : Viroids ,Prions. (2)**
3. **Who proposed five kingdom systems? Name all five kingdoms with examples .(2)**

2023

MCQ

1. **The five kingdom system of classification was given by: a) De Candolle b) Bentham and Hooker c) Linnaeus d) R.H. Whittaker**
2. **An association between roots of higher plants and fungi is called: a) Lichen b) Fern c) Mycorrhiza d) BGA**
3. **Give the economic importance of bacteria. (2)**

2024

MCQ

1. **All eukaryotic unicellular organism belongs to: a) Monera b) Protista c) Fungi d) Bacteria.**
2. **What is heterospory?Give two examples. (2)**
3. **Draw the structure of bacteria.(2)**

2025

MCQ

1. **Earlier bacteria,blue green algae,fungi,algae ,mosses ,ferns,gymnosperms and angiosperms were grouped together in one kingdom plantae.On the basis of which character all these diverse group were unified?**
   a) Nucleus b) cell wall c) chlorophyll d) mitochondria'
2. **Directions: In the following questions a statement of assertion is followed by a statement of reason. Mark the correct choice as:**
   a) If both assertion and reason are true,and reason is correct explanation of assertion.
   b) If both assertion and reason are true,but reason is not correct explanation of assertion.
   c) If assertion is true but reason is false.
   d) If both assertion and reason are false.
   Assertion- Viruses are not included in any system of classification.
   Reason-Viruses are non-living but develop living characters like multiplication etc,when they come in contact with suitable host.
3. **Cyanobacteria are classified under which kingdom? (2)**
4. **Who introduced the five kingdom classification? (2)**

Chapter- 3 Plant kingdom

2021

1. **Draw a well labelled diagram of plant cell. (2)**

2023

MCQ

1. **Plants of this group are diploid and well adapted to extreme conditions they grow bearing sporophylls in compact structures called cones: a) Monocots b) Dicots c) Pteridophytes d) Gymnosperms**
2. **Differentiate between liverworts and moss.(2)**

2024

MCQ

1. **Angiosperms are also called: a) seedless plants b) Fruitless plants c) Flowering plants d) All of these**

2025

1. **Write down the general characteristics of Pteridophytes. (2)**
2. **Name the plant which produces largest sperms in the plant kingdom.(1)**

Chapter-4 Animal kingdom

2021

MCQ

1. **The smallest animal phylum is: a) Porifera b) Mollusca c) Annelida d) Chordata**
2. **Differentiate between chordates and non-chordates. (2)**
3. **What are the main characteristics features of phylum Platyhelminthes. (2)**

2023

MCQ

1. **Which of the following is a pseudocoelomate? A) Roundworms b) Flatworms c) Tapeworm d) Earthworm.**
2. **Differentiate between cartilaginous and bony fishes. (2.5)**
3. **Match the following:**
   a) **Fat cell - Earthworm**
   b) **Open circulatory system - Adipose tissue**
   c) **Osteocytes - Cockroach**
   d) **Septal nephridia - Bone (2)**
4. **What are characteristics of class reptilian? (2)**

2024

MCQ

1. **Two chambered Heart is a feature of: a) Amphibians b) Fishes c) Reptiles d) Birds**
2. **Match the following:**

a) **Pore bearing animals i) Platyhelminthes**
b) **Flat worms ii) Arthropods**
c) **Segmented worm iii) Annelida**
d) **Jointed appendages iv) Porifera (2)**

3. **Enlist the five important features of phylum Annelida. (2.5)**

2025

MCQ

1. **Select the correct statements.**
   a) **In ctenophores,locomotion is mediated by comb plates**
   b) **In prawn excretion of waste materilas occurs through Malpighian tubules**
   c) **In Fasciola ,flame cells take part in excretion.**
   d) **Earthworm are hermaphrodites and yet cross fertilization takes place among them.**
2. **Directions: In the following questions a statement of assertion is followed by a statement of reason. Mark the correct choice as:**
   a) **If both assertion and reason are true,and reason is correct explanation of assertion.**
   b) **If both assertion and reason are true,but reason is not correct explanation of assertion.**
   c) **If assertion is true but reason is false.**
   d) **If both assertion and reason are false.**
   Assertion: Bats and whales are classified as mammals .
   Reason-Bats and whales have four chambered heart.
3. **Name the animal group also called-'The segmented Worms'.Enlist their four characters. (2.5)**
4. **Name the first phylum including triploblastic animals. (1)**
5. **What is radula? (1)**

Chapter-5 Morphology of Flowering Plants

2021

1. **Define: Hypogynous flower ,Apocarpous,Epicarpous (2)**

2023

MCQ

1. **Thick roots hanging down from Banyan tree are: a) Prop roots b) Buttress root c) Stilt roots d) Pneumatophores**
2. **What is inflorescence and its types. (3)**
3. **Explain various modification of roots. (3)**

2024

1. **Differentiate between Taproot system and Adventitious root system. (2)**
2. **Explain venation of its type. (2.5)**
3. **Give the difference between dicot and monocot root. (2)**
4. **Explain the hypogynous ,perigynous and epigynous flowers with diagram. (3)**

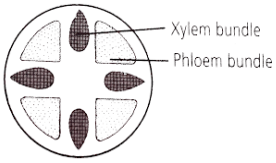
2025

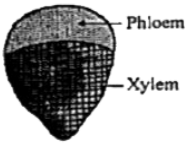
1. **Write down the floral formula of Solanum nigrum.(1)**
2. **Define: Hypogynous flower ,Epipetalous. (2)**

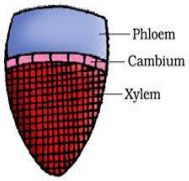
Chapter-6 Anatomy of Flowering Plants

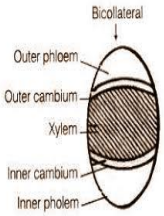
2023

1. **Identify the following types of vascular bundles:**









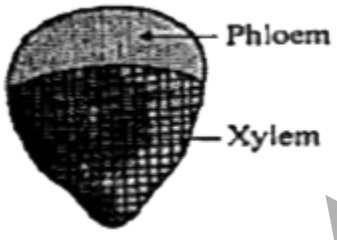
(2.5)

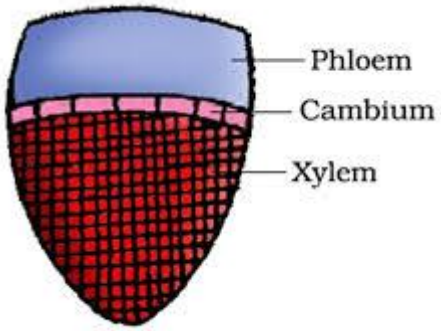
2024

1. **In which organ ,growth is subapical : a) Root b) Shoot c) Petiole d) Pedicel (1)**

2025

1. **Read the different components from i) to iv) in the list given below and tell the correct order of the components with reference to their arrangement from outer side to inner side in a woody dicot stem.**
   i)Phellem ii) Secondary phloem iii) Wood iv) secondary cortex
   a) Iv,I,ii,iii b) ii,iv,I,iii c) I,ii,iv,iii d) I,iv,ii,iii (1)
2. **Identify the type of vascular bundles given in the figure i) and ii) and select the correct option.**





i) Ii)

a) **Conjoint ,collateral,closed conjoint,collateral,open**
b) **Conjoint,bicollateral ,open conjoint,collateral,open**
c) **Conjoint,bicollateral,open conjoint,collateral,closed**
d) **Conjoint ,collateral conjoint ,open,bicollateral,closed (1)**

3. **Draw a labelled diagram of T.S. of dicot root. (2)**
4. **Mention two differences in the vascular bundles of dicot stem and monocot stem. (2)**
5. **What is stomatal apparatus? Explain the structure of stomata with a labelled diagram.(3)**

Chapter-7 Structural Organization in Animals

2021

1. **What are epithelial tissues? Explain its types. (2)**

Chapter-8 Cell

2021

1. **Draw a well labeled diagram of chloroplast. (2)**
2. **What is the importance of a vacuole in a plant cell?(2)**
3. **Match the following:**
   a) Cristae i) Golgi apparartus
   b) Cisternae ii) Chromosome
   c) Grana iii) Mitochondria
   d) Centromere iv) Chloroplast
   e) Insulin v) Pancreas (2)

2023

1. **Draw well labelled diagram of mitochondria. (2)**
2. **Describe the structure of nucleus. (2)**
3. **Describe fluid mosaic model of plasma membrane with diagram.(2)**

2024

1. **Draw the structure of mitochondria and give its functions.(2)**
2. **What is centromere? How does the position of centromere form the basis of classification of chromosomes? Support your answers with a diagram showing the position of centromere on different types of chromosome.(3)**

2025

1. **Which cell organelle is called as power house of the cell?(2)**
2. **What is true about ribosomes?**
   a) **The prokaryotic ribosomes are 80S ,where S stands for sedimentation coefficient.**
   b) **These are composed of RNA and protein.**
   c) **These are found only in eukaryotic cells.**
   d) **These are self splicing introns of some RNAs. (1)**
3. **Difference between RER and SER. (2)**
4. **Differentiate between plant cell and animal cell. (3)**
5. **Differentiate between DNA and RNA. (3)**
6.

Chapter-9 Biomolecules

2021

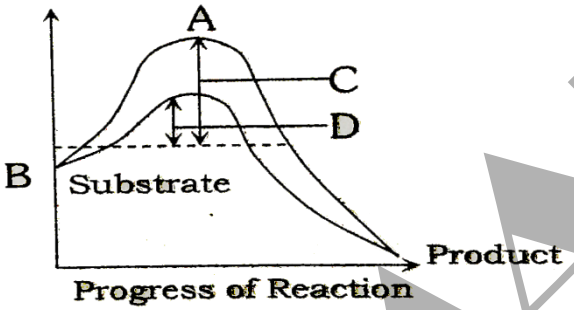
1. **Define: Apoenzyme , Coenzyme , Polysome ,Peptide bond. (3)**
2. **Draw a well labelled diagram of DNA as suggested by Watson and Crick. (2.5)**

2023

1. **Double Helix model of DNA was proposed by: a) Nirenberg b) Korenberg c) Robert Brown d) Watson and Crick.(1)**
2. **Define peptide bond. What are the functions of proteins? (3)**

2024

1.



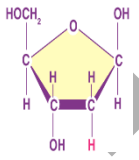
The figure given below show the conversion of a substrate into product by an enzyme.In which one of the four options,the components of reaction labeleld as A,B,C and D are correctly :

a) **Transition state b) B-Potential energy c) C-Activation energy with out Enzyme d) D-Activation energy with enzyme. (3)**

2. **Iiiustrate the peptide bond and glycosidic bond. (2)**

2025

1. **Identify the given structure-**



a) **Ribose b) Deoxyribose c) Glucose d) Fructose (1)**

Chapter-10 Cell cycle

2021

1. **Quiescent stage of cell cycle is: a) G_0 phase b) G_1 phase c) S-phase d) G_2 phase (1)**
2. **What is crossing over? (2)**
3. **Crossing over occurs in- a) Leptotene b) Zygotene c) Pachytene d) Diplotene (1)**
4. **What is satellite chromosome? (2)**
5. **Explain in detail the stages of Meiosis-I with suitable diagrams. (3)**

2022

1. **Centriole split and chromatids separate in: a) Telophase b) metaphase c) Anaphase d) Prophase (1)**
2. **Centriole duplication occurs in which phase of cell cycle? a) S phase b) G2 phase c) G1 phase d) G0 pahse(1)**
3. **Crossing over occurs in- a) Leptotene b) Zygotene c) Pachytene d) Diplotene (1)**

4. What is cell cycle? Explain it in detail along with a diagrammatic view. (3)

2023

1.What are the significance of mitosis? (2.5)

2024

1. Draw the different stages of Meiosis-I and Prophase I. (3)
2. Give the difference between mitosis and meiosis. (2.5)

2025

1. What are the various stages of meiotic prophase-I ? Enumerate the chromosomal events during each stage.(3)

Chapter-11 Photosynthesis in Higher Plants

2021

1. The rate of photosynthesis decreases at higher temperature. Why? (2)
2. Differentiate between photosystem I and Photosystem II. (3)
3. What is photophosphorylation? Explain non-cyclic photophosphorylation.(3)
4. Explain C3 cycle. (3)
5. The primary acceptor of CO2 in C4 cycle is- a) RuBP b) PEP c) 3-phosphoglycerate d) Malic acid.(1)

2022

1. In photosynthesis O2 is released from: a) H2O b) CO2 c) Both a and b d) Sunlight. (1)
2. How many ATPs are formed from one NADH+H^+ molecule? A) 03 b) 01 c) 02 d) 06 (1)
3. Explain diagrammatically the Hatch and Slack pathway of photosynthesis. (3)
4. Draw a well labelled diagram of The Light Harvesting Complex. (3)
5. Name the CO2 acceptor molecule in calvin cycle. (1)
6. Differentiate between light and dark reaction. (2.5)

2023

1. PEP is primary CO2 acceptor in: a) C4 plants b) C3 plants c) C2 plants d) Both C3 and C4 plants.(1)
2. Describe cyclic photophosphorylation. (2.5)

2024

1. Match the following columns:

Column I	Column II
a) C4 plants	Mitochondria
b) Photo system II	Accessory pigment
c) Chlorophyll b	Kranz anatomy
d) Photorespiration	Photooxidation (2.5)

2. Give the difference between non-cyclic electron transport pathway and cyclic electron transport pathway.(3)
3. Explain the concept of limiting factor. (2)
4. Differentiate between cyclic and non-cyclic photophosphorylation. (3)

2025

1. Explain Kranz anatomy with the help of diagram. (2)
2. Which products formed during the light reaction of photosynthesis are used to drive the dark reaction?(2)
3. Name the first stable product of C4 cycle.(1)
4. Give single chemical equation of photosynthesis.

Chapter-12 Respiration in Plants

2021

1. In a certain X organism ,a process is occurring throughout the day in which cells are participating .Water,ATP and carbon dioxide are evolved during the process and is not a light dependent process.
   a) Which process is discussed above?
   b) Is the process a catabolic or anabolic process?
   c) Write the raw material of this process. (3)
2. Give schematic representation of TCA. (3)

2022

1. What is the RQ? Give value of the RQ for carbohydrates.(2)

2024

Directions: In the following questions a statement of assertion is followed by a statement of reason.
Mark the correct choice as:

a) If both assertion and reason are true,and reason is correct explanation of assertion.
b) If both assertion and reason are true,but reason is not correct explanation of assertion.
c) If assertion is true but reason is false.
d) If both assertion and reason are false.

Assertion: RQ indicates the type of substrate oxidized in cell respiration.

Reason: Floating respiration uses carbohydrates.(1)

2025

1. Differentiate between glycolysis and Kreb cycle.
2. Match the following:
   a) Glycolysis — i) Respiratory quotient
   b) Oxidative Decarboxylation — ii) Alcoholic Fermentation
   c) Glucose — iii) EMP-pathway
   d) Yeast — iv) Respiratory Fuel
   e) Ration of CO_2 produced to oxygen consumed — iv) Co-Enzyme A (3)

Chapter-13 Plant-Growth and Development

2021

1. 2,4 –D b) IAA c) IBA d) None of these (1)
2. The plant growth hormone present in gaseous form is- a) Cytokinin b) Gibberellin c) Auxin d) Ethylene (1)
3. Why ABA hormone is called as stress hormone. (2)

2022

1. Name the plant hormone used for fruit ripening: a) Cytokinin b) Auxin c) Ethylene d) Gibberellin (1)
2. The malting process in brewing industry is speeded by: a) Cytokinin b) Auxin c) Ethylene d) Gibberellin (1)
3. Write four physiological effects of the Gibberellins. (2)

2023

1. What are the physiological effects of auxins? (2)

2024

1. Explain four functions of auxins. (2)

2025

1. Auxin promote a) Cell growth and development b) Apical dominance c) Cambial activity d) All of these .(1)
2. Why ABA is called stress hormone in plants? (2)

Chapter-14 Breathing and Exchange of Gases

2021

1. Differentiate between nucleosides and nucleotides. (2.5)
2. Write note on Emphysema,Angina. (2.5)

2022

1. The approximate value of Tidal Volume in human is : a) 550 ml b) 5,000ml c) 500ml d) 5,050ml

2023

2. CO_2 dissociates from carbaminohaempglobin when: a) PCO_2 is high and PO_2 is low b) PO_2 is high and PCO_2 is low c) PCO_2 is high and PO_2 are equal d) None of these (1)
3. Gills are used for gaseous exchange in: a) Fishes b) Amphibians c) Aves d) Arthropods (1)
4. The common passage for food and air is: a) Larynx b) Pharynx c) Ooesophagus d) All of these (1)
5. Explain diagrammatically the gaseous exchange at lungs level.(2)
6. Tabulate various difference between aerobic and anaerobic respiration.(2)
7. Define vital capacity and Tidal volume. (2)

2024

1. Ribs are attached to:

a) Scapula b) Sternum c) Clavicle d) Ilium (1)

2. The membrane enclosing the lungs is called…… (1)

Chapter-15 Body Fluids and Circulation

2021

1. Draw a well labelled diagram of human heart. (2)
2. Why is SA node called as pacemaker of heart? (2)
3. Differentiate between oxyhaemoglobin and carbaminohaemoglobin. (2)
4. Why are the walls of ventricles are thicker than the walls of atria? (2)
5. Describe mechanism of blood coagulation takes place after an injury in our body? (3)

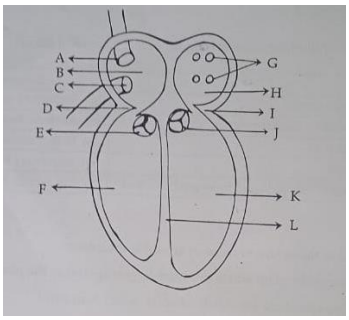
2022

1. The pacemaker of human heart is: a) SAN b) AVN c) Both a and b d) Purkinje fibres (1)
2. What is the cardiac cycle? Explain in detail. (3)
3. Draw a well labelled diagram of Human Heart. (2)
4. Expand ECG. (1)

2024

1. What is blood clotting ? Explain. (3)

2025



1. Label the parts A,C,H,J.
2. Which letter represents the vlave that makes the Lub sound of the Lub-dub heart beat sound?
3. Which letter represents the chamber that first receives deoxygenated blood from the body?
4. Name the membrane that covers the heart. (3)

Chapter-16 Excretory Products and their Elimination

2021

1. What is counter-current mechanism? What is its role? (3)
2. Explain the process of ultrafiltration in detail. (2.5)
3. Define: Artificial kidney, Renal failure. (2)

2022

1. Human beings are: a) Ammonotelic b) Ureotelic c) Uricotelic d) None of these (1)
2. The dotted appearance of cotex of kidney is due to : a) Duct of Bellini b) Convoluted tubules c) Loop of Henle d) Collecting duct (1)
3. Reabsorption of Na from glomerular filtrate is regulated by the hormone: a) Aldosterone b) Secretin c) Adrenaline d) Glucagon (1)
4. The process of release of urine is called: a) Excretion b) Filtration c) Micturition d) Reabsorption (1)
5. What is glomerular filtration? Also define GFR and give its value in a healthy human. (3)

2023

1. Directions: In the following questions a statement of assertion is followed by a statement of reason. Mark the correct choice as:

b) If both assertion and reason are true,and reason is correct explanation of assertion.
c) If both assertion and reason are true,but reason is not correct explanation of assertion.
d) If assertion is true but reason is false.
e) If both assertion and reason are false.

Assertion: A patient with kidney disorder needs to undergo dialysis at regular intervals.
Reason: During dialysis blood separated by and electrolyte permeable membrane moves in the opposite direction to dialyzing fluid containing small solutes and minerals ions but no excretory products. (1)

2. Draw well labelled diagram of human excretory system. (2)

2024

1. What is micturition? (2)

Chapter-17 Locomotion and Movement

2021

1.What are fibroblasts? What is their main function? (3)
2. Which of following is wrongly matched-
a) Myosin - Contractile protein
b) Smooth muscle –Involuntary muscles
c) Tendons - Connective tissue
d) Troponin - Fibrous protein (3)
3. Differentiate between cartilage and bone. (2)

2022

1. Which of the following is a source of energy for muscle contraction? A) ATP b) myosin c) Actin d) none of these (1)
2. What is sarcomere? Draw a well labelled diagram of a muscle fibre showing a sarcomere. (3)
3. Differentiate between striated muscles and non-striated muscles. (3)

2024

1. Explain ball and socket joints with examples. (3)

2025

1. Thin myofilament of muscle cell are mainly formed of- a) Actin b) Myosin c) Albumin d) Keratin (1)
2. A person exercising hard shows the following except-
a) Increase in ADP b) increase in glycogen c) decrease in blood glucose d) increase in lactic acid (1)
3. What is muscle fatigue? Why do muscles fatigue? (3)

4. **Answer the following:**
   a) **What is contractile unit of a muscle fibre called? (1)**
   b) **What lubricates the freely movable joint at the shoulder? (1)**

Chapter-18 Neural Control and Coordination

2021

1. **Nodes of Ranvier are present in: a) Nephron b) Cardiac muscle c) Bone d) Neuron (1)**
2. **Write a short note on Corpus callosum. (2)**
3. **Differentiate between CNS and PNS. (2)**

2022

1. **In humans the respiration ,cardiovascular reflexes and gastric secretions are controlled by:**
   a) **Medulla oblongata b) Cerebrum c) mid brain d) none of these (1)**
2. **Name various parts of human brain. Also name the part which control body temperature. (2)**

2023

1. **Describe salutatory conduction in a myelinated nerve fibre. (2)**
2. **The sympathetic nervous system mostly acts by releasing neurotransmitters …… and …….. (1)**

2024

1. **Mark the vitamin present in Rhodopsin: a) Vitamin A b) Vit.B c) Vit. C d) Vit. D (1)**
2. **Give the functions of rod cell and cone cell in eye. (2)**

2025

1. **Answer the following:**
   a) **Name the band of nerve fibres that joints the cerebral hemisphere. (1)**
   b) **Name the chemical released by parasympathetic nervous system. (1)**
2. **Draw well labelled diagram of human brain. (2)**
3. **Draw well labelled diagram of Nephron. (2)**

Chapter-19 Chemical Coordination and Integrational

2021

1. **Hormone of fight and flight are: a) Epinephrine and norepinephrine b) Triiodothyronine and Tetraiodothyronine c) glucocorticoids and Mineralocorticoids d) Insulin and glucagon (1)**
2. **Name two female sex hormones. (1)**

2022

1. **Which hormone stimulates the milk ejection from the mammary glands?**
   a) **ADH b) FSH c) Thyroxine d) oxytocin (1)**
2. **Graves disease is due to: a) Hyperthyroidism b) Insulin c) Hypothyroidism d) Melatonin (1)**
3. **Match the following:**
   a) **Thymosin - Thyroid gland**
   b) **TSH -Adrenal gland**
   c) **T4 - Pituitary gland**
   d) **Adrenaline – Thymus gland (2)**
4. **Which hormonal deficiency is responsible for the following? A) Goitre b) Diabetes mellitus (1)**

2023

1. **What is a composite gland? Give examples. (2)**
2. **Name the following hormones which are responsible for the following diseases?**
   a) **Diabetes mellitus b) Acromegaly c) Goitre d) Cretinism (3)**

2024

1. **Which of the gland atrophies after birth? A) Adrenals b) Thymus c) Liver d) Pancreas (1)**
2. **Which hormonal deficiency is responsible for the following: a) Diabetes mellitus b) Goitre c) Cretinism (1)**

2025

1. **Which hormone regulate the following?**
   a) **Secondary sexual character in males.**
   b) **Lowering blood sugar level.**
   c) **Growth of mammary gland and milk production.**
   d) **Increases calcium level to normal blood**. (4)