



Unique Past Papers

Chapter Wise

BIOLOGY 11

(2018, 2019, 2021, 2022 & 2023)

Lahore Board, Faisalabad Board, Multan Board, Gujranwala Board, Sahiwal Board, D.G. Khan Board, Sargodha Board, Rawalpindi Board & Bahawalpur Board.

Unit 1: Introduction

Biology and Some Major Fields of Specialization

- | | |
|--|----------------|
| Q.1: Define Physiology and Morphology. | 2 Times |
| Q.2: Define Microbiology and Biotechnology. | 9 Times |
| Q.3: Differentiate between fresh water Biology and Marine Biology. | 6 Times |
| Q.4: Define ecology and histology. | 1 Time |
| Q.5: Define Parasitology. | 4 Times |
| Q.6: What is embryology? | 2 Times |
| Q.7: Define molecular biology. | 3 Times |
| Q.8: Define Social Biology. | 1 Time |

Levels of Biological Organization

- | | |
|---|----------------|
| Q.9: How Micromolecules differ from Macromolecule? | 7 Times |
| Q.10: What is population? Give its four attributes. | 5 Times |
| Q.11: Differentiate between population and community? | 8 Times |
| Q.12: Discuss community. How abiotic factors limit the dynamics of community? | 1 Time |
| Q.13: Define the term biome with example. | 3 Times |
| Q.14: How Biome differ from biosphere? | 3 Times |
| Q.15: Why organ system is more complex in animals as compared to plants? | 1 Time |



Q.16: Define bioelements. Give two examples. 2 Times

Living World in Time

Q.17: Define biodiversity. Give the percentage of different groups of organisms. 3 Times

Q.18: What is phyletic lineage? **8 Times**

Q.19: Differentiate between deductive and inductive reasoning. **15 Times**

Q.20: Name at least four ways which lead to form a hypothesis. 1 Time

Q.21: Define theory. Give important features of a good theory. 2 Times

Q.22: How does theory differ from law? **8 Times**

Q.23: Define scientific Law. Give two examples. 2 Times

Q.24: Write names of four Eras of Geological time chart. **8 Times**

Q.25: Define hypothesis. 1 Time

Biology and the service of mankind

Q.26: What is cloning? Write one method of cloning. 1 Time

Q.27: What are pesticides? What are the side effects of using pesticide chemicals? 1 Time

Q.28: What is hydroponic culture technique? Give its importance? **17 Times**

Q.29: Write a short note on vaccination. 3 Times

Q.30: What is “integrated disease management”? **10 Times**

Q.31: Differentiate between chemotherapy and radiotherapy. 6 Times

Q.32: How AIDS spread? 1 Time

Q.33: What is Biological Control? Give its examples. 2 Times

Q.34: Compare radiotherapy and gene therapy to control disease. 4 Times

Q.35: Differentiate between gene therapy and chemotherapy. 3 Times

Q.36: Differentiate between biopesticides and biological control. 6 Times

Q.37: What is Pasteurization? Give its significance. 2 Times

Q.38: Give the examples of organisms that reproduce by natural cloning. 1 Time

Protection and Conservation of Environment

Q.39: Suggest how Environmental Pollution can be reduced? 1 Time

Q.40: Define Bioremediation and endangered species. 6 Times

Q.41: Differentiate between biocontrol and bioremediation. 1 Time

Unit 2: Biological Molecules

- Q.1: What is Biochemistry? Give its importance. 3 Times
 Q.2: Define Metabolism and name its two processes. 3 Times

Importance of Water

- Q.3: What is heat capacity of water? Give its importance. 6 Times
 Q.4: Define protective role of water. 2 Times
 Q.5: Define heat of vaporization? Give the heat of vaporization of water. 3 Times
 Q.6: What do you know about ionization of water? 1 Time

Carbohydrates, Lipids, Proteins & Nucleic Acid

- Q.7: Differentiate between Amylose and Amylopectin. 4 Times
 Q.8: Differentiate between glycosidic and peptide bond. 5 Times
 Q.9: Sketch Ribofuranose and Glucopyranose. 6 Times
 Q.10: What is chemical definition of carbohydrates? Give its general formula? 1 Time
 Q.11: Define oligosaccharides and its types? 3 Times
 Q.12: What are lipids? Give two roles of waxes. 3 Times
 Q.13: Differentiate between saturated and unsaturated fatty acid. 3 Times
 Q.14: Why are fats considered as high energy compound? 2 Times
 Q.15: Differentiate between Fats and Oils. 1 Time
 Q.16: Write down structural formula of phosphatidylcholine (lecithin). 2 Time
 Q.17: What are characteristics of lipids? Write its importance. 1 Time
 Q.18: What are terpenoids? Give examples. 1 Time
 Q.19: Draw structural formula of glycylalanine. 5 Times
 Q.20: What did F. Sanger concluded about insulin? 1 Time
 Q.21: Give general formula for an amino acid. 5 Times
 Q.22: How the peptide bonds are formed? 2 Times
 Q.23: What are Globular proteins? Give examples. 2 Times
 Q.24: Define Fibrous Proteins. 1 Time
 Q.25: Write down the functions of proteins? 1 Time
 Q.26: Differentiate between Nucleoside and Nucleotide. 4 Time
 Q.27: What is phosphodiester linkage? Sketch it. 1 Time
 Q.28: What is the function of mRNA? 1 Time
 Q.29: Write down two differences between DNA and RNA. 1 Time
 Q.30: Differentiate between purines and pyrimidines? 1 Time

Conjugated Molecules

Q.31: What are conjugated molecules?

6 Times

Unit 3: Enzymes

Introduction

- Q.1: Define enzymes. 4 Times
 Q.2: What are enzymes and coenzymes? 3 Times
Q.3: What is cofactor and activator of enzyme? 15 Times
 Q.4: Differentiate between Co-factor and Co-enzyme. 2 Times
Q.5: Differentiate between apoenzyme and holoenzyme. 26 Times
Q.6: Give differences between prosthetic group and activator. 8 Times
Q.7: How is Prosthetic group different from Co-enzyme? 10 Times
 Q.8: Define apoenzyme and co-factor. 1 Times
 Q.9: Differentiate between anabolic and catabolic reactions? 1 Time

Characteristics of Enzymes

- Q.10: Write down any four characteristics of enzyme. 15 Times**
Q.11: What is active site of an enzyme? 12 Times
 Q.12: How does an enzyme accelerate a metabolic reaction? 2 Times
 Q.13: Why some enzymes are produced in the inactive form? Give example. 1 Times
 Q.14: What is difference between pepsin and pepsinogen? 6 Times
 Q.15: Give the functions of binding site and catalytic site of the active site of an enzyme. 1 Time

Factors & Mechanism of Enzyme Action

- Q.16: What is enzyme to enzyme chain? 3 Times
Q.17: What do you mean by induce fit model of enzyme action? 25 Times
Q.18: What is lock and key model of enzyme action. 16 Times
 Q.19: What is the effect of enzyme concentration on rate of reaction? 3 Times
Q.20: Write the effect of temperature on the enzyme action. 15 Times
Q.21: How pH affects the rate of enzyme action? 11 Times
 Q.22: Give the optimum pH values of enzyme pepsin and pancreatic lipase. 1 Time
 Q.23: How substrate concentration effects enzymes action? 4 Times
Q.24: What are enzyme inhibitors? Give their major types. 16 Times



- Q.25: Differentiate between reversible and irreversible enzyme inhibitors.** 13 Times
- Q.26: Compare competitive and non-competitive inhibitors in enzyme action.** 25 Times

Unit 4: The Cell

Emergence and Implication of Cell Theory

- Q.1: Write down salient features of cell theory.** 11 Times
- Q.2: Define cell theory. Who proposed it? 2 Times
- Q.3: What are the functions of Parenchyma and xylem cells? 1 Time
- Q.4: How the magnification power of microscope is calculated? 2 Times
- Q.5: Give name of Robert Hook's publication on cell discovery. 1 Time
- Q.6: What is meant by resolution of microscope? 2 Times

Structure of A Generalized Cell

- Q.7: Write down any two differences between prokaryotes and eukaryotes. 3 Times
- Q.8: What is cell fractionation technique? 1 Time
- Q.9: What is differentially permeable membrane? 4 Times
- Q.10: Define fluid mosaic model of the cell membrane. 6 Times
- Q.11: What is unit membrane model of cell membrane? 1 Time
- Q.12: Compare composition of primary and secondary cell wall.** 8 Times
- Q.13: How cell wall of plants differs from prokaryotes? 1 Time
- Q.14: Give structure and composition of bacterial cell wall. 1 Time

Cytoplasm & Nucleus

- Q.15: Give important functions of Cytoplasm. 2 Times
- Q.16: What is cytosol? 2 Time
- Q.17: How smooth endoplasmic reticulum is different from rough endoplasmic reticulum? 3 Times
- Q.18: Give three functions of smooth endoplasmic reticulum (SER). 7 Time
- Q.19: How cristae is different from cisternae? 5 Times
- Q.20: Define endocytosis. 4 Times
- Q.21: Differentiate between phagocytosis and pinocytosis. 7 Times
- Q.22: Define polysome and ribosomes and give their functions. 5 Times
- Q.23: What are two subunits in ribosomes and how their attachment is controlled? 2 Times



Q.24: Where the new Ribosomes assembled?	1 Time
Q.25: Write down the two functions of Golgi complex.	5 Times
Q.26: What are you know about autophagy.?	1 Time
Q.27: What are storage diseases? Give an example?	10 Time
Q.28: Define congenital disease. Give examples.	2 Times
Q.29: Define tay-Sach's disease.	2 Times
Q.30: What are autophagosomes?	2 Times
Q.31: What is peroxisome?	3 Times
Q.32: Write the role of glyoxysomes.	3 Times
Q.33: How peroxisomes are different from glyoxysomes?	2Times
Q.34: Give role of vacuole in plant cell.	2 Times
Q.35: Differentiate between microtubules and microfilaments.	4 Times
Q.36: Give role and composition of cytoskeleton.	1 Time
Q.37: How intermediate filaments support cell?	2 Times
Q.38: Give any two important functions of centrioles.	4 Times
Q.39: What are Cristae and Polysome?	2 Times
Q.40: Why is Mitochondrion called self replicating organelle?	1 Time
Q.41: Differentiate F ₁ particles from cristae.	1 Time
Q.42: Give importance of mitochondria.	1 Time
Q.43: How venus flytrap catches insect?	1 Time
Q.44: What are plastids? Give functions of one of them.	2 Times
Q.45: Differentiate between chromoplasts and leucoplasts.	14 Times
Q.46: What is stroma? Give its function.	3 Times
Q.47: How Thylakoid differ from Granum?	3 Times
Q.48: Give role of mitochondria in the cell.	1 Time
Q.49: What are chromosomes? Why they are important?	1 Time
Q.50: What is nucleolus? Give its function.	2 Times
Q.51: Briefly describe the structure and function of nuclear envelope?	1 Time

Unit 5: Variety of Life

Q.1: Define species and virology.	4 Times
Q.2: Give biological classification of corn.	10 Times

Nomenclature

Q.3: What is binomial nomenclature? What are two rules of nomenclature?	10 Times
Q.4: Give Disadvantages of common names.	1 Time

- Q.5: Write down about five kingdom classification system proposed by Margulis and Schwartz. 1 Time
- Q.6: How fungi differ from animals? 1 Time
- Q.7: Write down any four characteristic features of virus? 1 Time
- Q.8: Why Euglena is difficult to classify? 1 Time

Viruses

- Q.9: What is intracellular obligate parasite? Give example. 2 Times
- Q.10: Differentiate between the capsid and capsomeres. 5 Times
- Q.11: What are capsomeres and what is their number in adenovirus? 2 Times
- Q.12: **How virion differs from prion?** 8 Times
- Q.13: Compare prophage with provirus. 1 Time

Life Cycle of Bacteriophages

- Q.14: Differentiate between lytic and lysogenic phage. 4 Times

Some Viral Diseases

- Q.15: Write names of four common viral diseases in humans. 2 Times
- Q.16: What are pocks? 1 Time
- Q.17: What are mumps and measles? 2 Times
- Q.18: What is herpes simplex? 1 Time
- Q.19: What is reverse transcriptase? Give its functions. 2 Times
- Q.20: What are Retroviruses and Paramyxoviruses? 6 Times
- Q.21: What is HIV? Give its symptoms. 1 Time

Unit 6: Kingdom Prokaryotae (Monera)

Discovery & Structure of Bacteria

- Q.1: Describe four postulates of Germ theory. 7 Times
- Q.2: Name three general shapes of bacteria and explain any one. 2 Times
- Q.3: What are pili? Give their functions. 5 Times
- Q.4: Differentiate between slime and capsule. 2 Times
- Q.5: What is plasmid? Give its functions. 7 Times
- Q.6: **What are mesosomes? Write their role.** 9 Times
- Q.7: Differentiate between Gram-positive and Gram-negative Bacteria. 3 Times



- Q.8: What is difference between bacterial cell membrane and eukaryotic cell membrane? 1 Time
- Q.9: Differentiate between lophotrichous and amphitrichous. 2 Times
- Q.10: Differentiate between Tetrad and Sarcina. 1 Time
- Q.11: Define Chemotaxis. 1 Time
- Q.12: Name different types of bacteria on the basis of presence of flagella. 1 Time

Nutrition in Bacteria

- Q.13: What are Photosynthetic bacteria? Give two examples. 3 Times
- Q.14: Differentiate between lag and log phase. 1 Time
- Q.15: What are microaerophilic bacteria? Give one example. 1 Time
- Q.16: Write four phases in bacterial growth curve? 1 Time

Respiration in Bacteria

- Q.17: How respiration occurs in bacteria? 1 Time
- Q.18: Define cysts. 1 Time

Importance & control of Bacteria

- Q.19: What is ecological importance of bacteria? 1 Time
- Q.20: Differentiate between microbicidal and microbistatic chemicals. 3 Times
- Q.21: Differentiate between antibiotics and antiseptics with examples. 2 Times
- Q.22: Write down main physical methods to control bacteria. 2 Times

Immunization and Vaccination

- Q.23: Discuss the role of Edward Jenner in vaccination method of treatment. 2 Times
- Q.24: What is contribution of Louis Pasteur in microbiology? 1 Time
- Q.25: Give misuse of antibiotics. 5 Times

Characteristics of Cyanobacteria

- Q.26: What are trichomes? Give the structure and function of Heterocysts. 3 Times
- Q.27: Differentiate between Hormogonia and Akinetes. 3 Times

Unit 7: The Kingdom Protista

Historical Perspective

- Q.1: Write two distinguishing characters of Kingdom Protista. 7 Times



- Q.2: Why Kingdom Protista is regarded as a polyphyletic group of organisms? 2 Times
- Q.3: Name any four phyla of Protoctista. 2 Times

Protozoa: Animal like protists

- Q.4: Name six groups of animal like protists. 1 Time
- Q.5: Differentiate between zooflagellates and dinoflagellates. 1 Time
- Q.6: Write features of chrysophyta. 1 Time
- Q.7: Write symptoms of Malaria and their cause. 1 Time
- Q.8: Which type of photosynthetic pigments are present in plant like protists? 1 Time
- Q.9: What do you know about amoeba? 2 Times
- Q.10: Characterize Giant Amoeba. 8 Times**
- Q.11: From where do giant amoebas get energy? 1 Time
- Q.12: Name a parasitic amoeba. What disease does it cause? 1 Time
- Q.13: Write two characters of amoebas. 1 Time
- Q.14: Write the two characteristics of zooflagellates. 8 Times**
- Q.15: What are choanoflagellates? How are they related to sponges? 14 Times**
- Q.16: What is the importance of Trichonymphas? 11 Times**
- Q.17: What is sleeping sickness? 6 Times
- Q.18: How zooflagellates obtain their food? 1 Time
- Q.19: Write down two characteristics of ciliates. 7 Times
- Q.20: What is the function of pellicle in ciliates? 5 Times
- Q.21: How ciliates differ from other protozoans? 3 Times
- Q.22: Give function of micronucleus and macronucleus of ciliates? 3 Times
- Q.23: What is the role of contractile vacuole in fresh water ciliates? 1 Time

Foraminiferans and Actinopods

- Q.24: Differentiate between foraminiferans and Actinopods. 15 Times**
- Q.25: How are Limestone deposits formed? 7 Times
- Q.26: Write down two characteristics of apicomplexans. 1 Time

Algae-plant like protists

- Q.27: Define term thallus. 5 Times
- Q.28: How Algae differ from plants? 11 Times**
- Q.29: What are pigments found in Algae? 2 Times
- Q.30: Give habitat of Algae. 1 Times
- Q.31: Write a note on Euglenoids. 14 Times**



- Q.32: Give four characteristics of dinoflagellates with examples.** 8 Times
- Q.33: What are red tides?** 12 Times
- Q.34: Write any three characteristics of diatoms. 2 Times
- Q.35: Brown Algae includes the giants of the protists kingdom, Why? Give two examples of brown algae. 2 Times
- Q.36: What are kelps? Give its parts.** 16 Times
- Q.37: Give the pigments and examples of Rhodophyta. 3 Times
- Q.38: Write any two characteristics of red algae. 3 Times
- Q.39: Write down two characteristics of green algae with one example. 2 Times
- Q.40: Green algae are considered ancestral organism of green land plants, Why?** 9 Times
- Q.41: What is chlorella? Give its significance.** 17 Times
- Q.42: Give two examples of unicellular green algae. 3 Times
- Q.43: Give any two points in favour of economic importance of Algae.** 12 Times
- Q.44: Give at least four useful substances obtained from marine algae. 1 Time

Fungus Like Protists

- Q.45: What are characteristics of fungus like protists?** 9 Times
- Q.46: What is feeding stage of slime mold? Define it. 2 Times
- Q.47: Discuss adaptations of slime molds during unfavorable condition. 3 Times
- Q.48: Why Physarum Polycephalum is a model organism for research? 5 Times
- Q.49: Why slime molds are included in kingdom Protista? 1 Time
- Q.50: Give an example of water molds, why it is notorious? 5 Times
- Q.51: What was the infamous role played by phytophthora infestans in human history?** 9 Times

Unit 8: Fungi

- Q.1: Define nuclear mitosis. In which kingdom it is found?** 11 Times

The Body of Fungus

- Q.2: Write resemblances of fungi with plants. 2 Times
- Q.3: How do the Fungi resemble animals? 1 Time
- Q.4: What are hyphae and mycelium? 1 Time
- Q.5: Differentiate between septate and coenocytic hyphae. 7 Times
- Q.6: How composition of fungus cell wall is advantageous to fungi? 1 Time
- Q.7: What are lichens? Give their ecological importance.** 15 Times
- Q.8: What is importance of mycorrhiza for plants?** 9 Times



- Q.9: Define endomycorrhizae and ectomycorrhizae. 7 Times
 Q.10: Why are some fungi called as predators? 3 Times
 Q.11: What are haustoria? 1 Time

Reproduction

- Q.12: Differentiate between karyogamy and plasmogamy.** 9 Times
 Q.13: What is Dikaryotic Hyphae and how it is formed? 7 Times
 Q.14: How Budding differs from fragmentation? 3 Times
 Q.15: What are conidia and spores? 7 Times
 Q.16: Differentiate between conidia and conidiophores? 1 Time
 Q.17: Differentiate between obligate parasites and facultative parasites. 2 Times
 Q.18: Name methods of asexual reproduction in fungi. 1 Time
Q.19: What do you mean by budding and para sexuality? 14 Times

Classification of Fungi

- Q.20: What are Zygomycetes? Why they are named so? 1 Time
 Q.21: Compare Ascocarp with Basidiocarp. 2 Times
 Q.22: Name the type of hypha and sexual spore in sac fungi. 1 Time
 Q.23: Name the fruiting body of fungi Ascomycota and Basidiomycota. 1 Time
 Q.24: Differentiate between asci and ascocarp. 1 Time
Q.25: Differentiate between rusts and smuts. 12 Times

Land Adaptations of Fungi

- Q.26: Give two characteristics of Fungi for their land adaptations. 1 Time

Importance of Fungi

- Q.27: Give importance of pink bread mold in food industry and genetics. 1 Time
 Q.28: What are toadstools? Give example. 3 Times
 Q.29: Write down importance of yeast. 2 Times
 Q.30: What is the economic importance of fungi? 2 Times
 Q.31: How fungi is economically helpful in food industry? 1 Time
 Q.32: Write the function of penicillin and lovastatin. 1 Time
Q.33: What is histoplasmosis? Give its causes. 8 Times
 Q.34: What is ergotism? How is it caused? 7 Times
 Q.35: What is Ringworm? 1 Time
 Q.36: Write any two superficial infections caused by fungi. 1 Time
 Q.37: Give names of two plants and Animals diseases caused by Fungi. 1 Time



Q.38: What are Aflatoxins?

1 Time

Unit 9: Kingdom Plantae

Phylogenetic classification system

Q.1: What is phylogenetic system of classification?

4 Times

Division Bryophyta

Q.2: Write down any four characters of bryophytes.

3 Times

Q.3: What are amphibious plants of the world?

11 Times

Q.4: Name the classes of division bryophyte.

1 Time

Classification Bryophytes

Q.5: Differentiate between Antheridiophores and Archegoniophores.

3 Times

Q.6: What is protonema?

4 Times

Q.7: What are paraphyses? Give their function.

4 Times

Q.8: Write two advance characters of Anthocerosida Sporophyte.

2 Times

Q.9: What are integuments?

1 Time

Alternation of Generation

Q.10: What is alternation of generation? Give its significance.

12 Times

Division Tracheophyta

Q.11: Which plant group is called arthropytes and why?

9 Times

Q.12: Define the term Circinate Vernation.

9 Times

Q.13: What is Maiden Hair Fern?

3 Times

Q.14: What is Rhizome?

1 Time

Q.15: What is the earliest group of vascular plants? Quote any two examples of its extinct plants.

1 Time

Q.16: Differentiate between bryophytes and tracheophytes.

1 Time

Q.17: Write names of two extinct and two living members of Psilopsida.

3 Times

Q.18: Give two important features of Lycopsidea.

2 Times

Q.19: Give any four characteristics of vascular plants, which enable them to become predominant flora of land.

1 Time

Q.20: Write down the main difference between microphylls and megaphylls.

14 Times

Q.21: What is overtopping? 3 Times

Evolution of Seed

Q.22: Define Seed and Fruit. 8 Times

Q.23: Differentiate between homospory and heterospory. 9 Times

Class Gymnospermae

Q.24: What are gymnospermae? Give examples. 4 Times

Q.25: Differentiate between male and female cones of Pinus. 4 Times

Class Angiospermae

Q.26: How does gymnosperm differ from Angiosperms? Give two points only. 4 Times

Q.27: What are essential and non-essential parts of flower? 5 Times

Q.28: What role double fertilization plays in the food storage? 21 Times

Q.29: How monocots are compared to dicots? Give any four characters. 7 Times

Q.30: Write down biological names of Shisham and Sweet Pea. 1 Time

Q.31: Give two examples of Family Rosaceae. 1 Time

Q.32: Give botanical names of following plants, Potato, Tobacco, Tomato and red pepper. 3 Times

Unit 10: Kingdom Animalia

Introduction

Q.1: Define kingdom animalia? 1 Time

Q.2: Differentiate between protostomes and Deuterostome with two points. 2 Times

Q.3: Differentiate between radial and bilateral symmetry. 8 Times

Q.4: Differentiate between diploblastic and triploblastic animals. 9 Times

Q.5: Differentiate between Schizocoelous and Enterocoelous coelom. 4 Times

Q.6: Differentiate between sac-like and tube-like digestive systems. 2 Times

Q.7: Differentiate between coelomates and acoelomates. 5 Times

Q.8: Differentiate between “radial cleavage” and “spiral cleavage”. 3 Times

Q.9: Differentiate between Acoelomates and Pseudocoelomates. 6 Times

Q.10: Differentiate between Parazoa and Eumetazoa. 2 Times

Q.11: Name any four phylum belonging to series proterostomia? 1 Time

Phylum Porifera

- Q.12: What is mesoglea and spongocoel? 3 Times
 Q.13: Define gemmules and protandrous. 7 Times
Q.14: Mention any two commercial uses of sponges. 12 Times
 Q.15: Differentiate between Ostia and Osculum. 6 Times
 Q.16: Give two examples of sponges. 2 Times
 Q.17: Differentiate between budding and gemmules. 2 Times
 Q.18: What are spicules? 1 Time

Phylum Coelenterata

- Q.19: What are nematocysts? Give their function. 3 Times
Q.20: What is polymorphism? 11 Times
 Q.21: Differentiate between polyps and medusa. 6 Times
Q.22: Differentiate between corals and coral reefs. 8 Times
 Q.23: What is blastostyle? 1 Time

Phylum Platyhelminthes

- Q.24: What is hermaphrodite animal? Give an example. 3 Times
 Q.25: How reproduction occurs in Platyhelminthes? 2 Times
Q.26: Write any two parasitic Adaptations is Flat worms. 9 Times
 Q.27: Differentiate between infestation and disinfestations. 6 Times
 Q.28: What do you know about flame cells? 1 Time

Phylum Nematoda

- Q.29: What are hook worms? 1 Time
 Q.30: Write down the scientific names of pin worm and hook worm. 2 Times

Phylum Annelida

- Q.31: Why annelids and arthropods are considered having same origin? 4 Times
 Q.32: Give salient features of class polychaeta. 2 Times
 Q.33: Name the excretory organs of phylum Annelid and Arthropoda. 2 Times
 Q.34: What is the agricultural importance of Earthworms. 2 Times
 Q.35: What is metameric segmentation? In which phylum is it present? 1 Time
 Q.36: What are anticoagulants? Give their role. 1 Time
 Q.37: Name three classes of phylum annelid. 1 Time
 Q.38: How locomotion takes place in annelid? 1 Time

Phylum Arthropoda

- Q.39: Give the characteristics of class Myriapoda. 2 Times
Q.40: Give beneficial effects of insects. 12 Times
 Q.41: Name four harmful effects of insects. 2 Times
 Q.42: Write the names of four harmful insects. 4 Times
Q.43: How does Metamorphosis occur in Arthropods? 15 Times
 Q.44: How does transport of gases may take place in arthropods? 1 Time
 Q.45: How complete metamorphosis is different from incomplete metamorphosis? 1 Time

Phylum Mollusca

- Q.46: With two examples, discuss class Gastropoda. 3 Times
 Q.47: What is nymph? 2 Times
 Q.48: What is Hemocyanin? 2 Times
 Q.49: Discuss about the brain of Octopus. 3 Times
 Q.50: What is Mantle? In which phylum it is present? 4 Times
 Q.51: What is radula? 3 Times
 Q.52: What is operculum? 2 Times

Phylum Echinodermata

- Q.53: Write down affinities of echinoderms with hemichordates. 3 Times
 Q.54: Define the term regeneration. 3 Times
 Q.55: What is madreporite? 2 Times
 Q.56: Define Water Vascular system in Echinoderms? 1 Time
 Q.57: Name two larva found in Echinoderms. 2 Times
 Q.58: Comment on the placement of Echinodermata at the top of list of invertebrate phyla. 2 Times

Phylum Chordata

- Q.59: Give any two basic characteristics of Chordata.** 17 Times
 Q.60: Differentiate between Anamniotes and Amniotes. 2 Times
 Q.61: Write down some general characteristics of class Chondrichthyes. 2 Times
 Q.62: Why sub-phylum vertebrate is also called craniata? 1 Time

Pisces

- Q.63: Give the two importance of sharks?** 9 Times



Q.64: Give the role of swim bladder in bony fishes. **9 Times**

Q.65: Write down any four characteristics of class Osteichthyes (Bony Fishes). **3 Times**

Class Amphibia

Q.66: Why Amphibians were not successful on land?

Class Reptilia

Q.67: What is the importance of Jurassic Period? **1 Time**

Q.68: Give any four characteristics of reptilians. **1 Time**

Class Aves

Q.69: What is syrinx? Give function. **4 Times**

Q.70: Give reptilian characteristics of Archaeopteryx. **4 Times**

Q.71: What are running birds? Give example. **1 Time**

Q.72: Why birds have gizzard? **1 Time**

Class Mammalia

Q.73: Write any three characteristics of mammals. **4 Times**

Q.74: Write names of three sub-classes of mammalia. **1 Time**

Q.75: What are Prototheria? Give two examples. **4 Times**

Q.76: What are Metatheria? Give one example. **5 Times**

Q.77: What is marsupium? Discuss. **1 Times**

Q.78: Give two characters of subclass Eutheria. **3 Times**

Q.79: Define placenta. What is its function? **4 Times**

Q.80: Differentiate between Prototheria and Metatheria. **1 Time**

Q.81: Name some Egg laying Mammals. **1 Time**

Unit 11: Bioenergetics

Photosynthesis

Q.1: Define bioenergetics. **8 Times**

Q.2: Give any two differences between photosynthesis and respiration. **3 Times**

Q.3: Define photosynthesis. Write an equation to summarize it. **9 Times**

Q.4: What is compensation point? What does it indicate? **12 Times**

Q.5: What is source of oxygen during photosynthesis. **6 Times**



- Q.6: Write down the molecular formula for chlorophyll “a” and “b”. **6 Times**
 Q.7: Differentiate between chlorophyll-a and chlorophyll-b. **6 Times**
Q.8: What are accessory pigments in plants? Give their functions. **12 Times**
 Q.9: What is porphyrin ring? **2 Times**
 Q.10: What are Bacteriochlorophylls? **1 Time**

Light – the driving Energy

- Q.11: How action spectra can be obtained? **3 Times**
 Q.12: What is the use of spectrophotometer? **5 Times**
 Q.13: Differentiate between absorption and action spectrum? **3 Times**
 Q.14: How is carbon dioxide absorbed by the cell wall of the mesophyll cells? **1 Time**

Light Dependent Reaction

- Q.15: What is light dependent reaction? **1 Times**
 Q.16: What is the role of antenna complex in photosynthesis? **3 Times**
 Q.17: Differentiate between photosystem I and photosystem II. **2 Times**
 Q.18: What is Z – scheme? **4 Times**
 Q.19: What are photosystems? Give their types. **4 Times**
 Q.20: Differentiate between photolysis and photophosphorylation. **4 Times**
 Q.21: Explain chemiosmosis. **7 Times**
 Q.22: How action spectra can be obtained? **3 Times**
 Q.23: What are cytochromes? **3 Times**

Light Independent Reaction

- Q.24: Define Calvin Cycle. **1 Time**
 Q.25: Why Calvin cycle is also called as C₃ pathway? **1 Time**
 Q.26: How dark reaction can be summarized in an equation? **1 Time**

Respiration

- Q.27: Compare alcoholic and lactic acid fermentation.** **20 Times**
 Q.28: What is importance of ATP? **1 Time**
 Q.29: Differentiate between aerobic and anaerobic respiration. **4 Times**
 Q.30: What is External respiration? **1 Time**
 Q.31: What is meant by internal respiration? **1 Time**

Glycolysis



- Q.32: What is Glycolysis? Where it takes place in the cell? **6 Times**
 Q.33: What is pay off phase of glycolysis? **1 Time**
 Q.34: Write down the name of main phases of Glycolysis. **1 Time**

Krebs cycle

- Q.35: What happens to Pyruvic Acid before entering into Kreb's Cycle? **2 Times**

Respiratory Chain

- Q.36: Define oxidative phosphorylation. **2 Times**
 Q.37: What is biological oxidation? **1 Time**

Unit 12: Nutrition

Autotrophic Nutrition

- Q.1: Distinguish between nutrients and nutrition. **5 Times**
 Q.2: What is chlorosis and what is their cause? **6 Times**
 Q.3: Write down symptoms in plants by deficiency of phosphorus and potassium. **1 Time**
 Q.4: Define assimilation. **1 Time**

Heterotrophic Nutrition in Plants

- Q.5: What are root nodules? Give their role. **1 Time**
 Q.6: What is meant by symbiotic nutrition? **4 Times**
 Q.7: Differentiate between saprophytic and Parasitic mode of nutrition. **6 Times**
 Q.8: How trapping and decomposition of insects occur in pitcher plant? **6 Times**
 Q.9: What are leguminous plants? **3 Times**
 Q.10: How trapping and digestion of insects occur in sundew? **1 Time**

Method of Animal Nutrition

- Q.11: What are detritivores animal? **10 Times**
 Q.12: Differentiate between carnivores and omnivores. **4 Time**
 Q.13: What are filter feeders? Give their two examples. **3 Times**
 Q.14: What are fluid feeders? Give example. **3 Times**
 Q.15: What are Macrophagous feeding? Give one example. **6 Times**
 Q.16: Differentiate between facultative and obligate parasite. **8 Times**
 Q.17: Name characteristic processes involved in holozoic nutrition. **2 Times**



- Q.18: Define digestion and egestion. 4 Times
 Q.19: Differentiate between ingestion and Egestion. 3 Times
 Q.20: Why tubular digestive system is more efficient than sac like digestive system? 7 Times
 Q.21: Differentiate between Herbivores and Carnivores. 1 Time
 Q.22: Write the names of four parts digestive system of cockroach. 1 Time
 Q.23: Differentiate between absorption and assimilation. 3 Times

Digestion in Oral Cavity

- Q.24: Define digestion. What are its types? 2 Times
Q.25: Name the various types of salivary gland in man? 20 Times
Q.26: Differentiate between peristalsis and anti-peristalsis. 21 Times
 Q.27: Write only two functions of oral cavity. 5 Times
 Q.28: How selection of food takes place by oral cavity? 3 Times

Digestion in stomach

- Q.29: What is pyrosis? Write its causes. 5 Times**
 Q.30: Differentiate between chyme and bolus. 5 Times
Q.31: Name types of cells present in gastric glands. 6 Times
Q.32: What prevents the wall of stomach from being digested? 6 Times
 Q.33: What is the mucosa of the stomach? Give its significance. 2 Times

Digestion in intestines

- Q.34: Give names of hormones secreted by digestive systems. 10 Times**
 Q.35: How the gall stones are formed? 2 Times
 Q.36: What happens when liver ruptures and becomes large? 1 Time
 Q.37: How Glycerols and Fatty acids are absorbed into blood? 1 Time
 Q.38: Write the composition of pancreatic juice. 4 Times
 Q.39: Enlist enzyme secreted from jejunum. 2 Times
 Q.40: What is bile? Give its functions. 1 Time
 Q.41: Define villi and microvilli. Give their functions. 2 Times
 Q.42: Give the role of large intestine of human.
Q.43: Compare diarrhea and constipation. 8 Times
Q.44: Differentiate between appendix and appendicitis. 11 Times
 Q.45: Write some features of rectum. 1 Time
 Q.46: Write some features of rectum. 1 Time
Q.47: What is Dyspepsia? Give its two symptoms. 9 Times

Q.48: What is food poisoning? Write its symptoms.

10 Times

Q.49: What is ulcer? Write a brief note on it.

1 Time

Unit 13: Gaseous Exchange in Plants

Gaseous Exchange in Plants

- | | |
|--|-----------------|
| Q.1: Differentiate between organismic and cellular respiration. | 8 Times |
| Q.2: In what way air is a better respiratory medium than water? | 14 Times |
| Q.3: Define photorespiration. | 22 Times |
| Q.4: What is importance of rubisco? | 9 Times |
| Q.5: Define breathing. | 1 Time |
| Q.6: Why ventilation in water is far more difficult than air? | 1 Time |
| Q.7: Define respiratory surface. Give their properties. | 25 Times |
| Q.8: What are spiracles? Give their function. | 7 Times |
| Q.9: Differentiate between cutaneous and pulmonary respiration in frog. | 12 Times |
| Q.10: What are counter current exchange and parabronchi? | 16 Times |
| Q.11: Differentiate between Inhalation and Exhalation. | 6 Times |
| Q.12: Name the structure involved in gaseous exchange in Earthworm, fish and frog. | 6 Times |
| Q.13: Give one difference between Alveoli and Parabronchi. | 1 Time |
| Q.14: Define Parabronchi and Bronchioles. | 2 Times |
| Q.15: How respiration takes place in Earthwork? | 2 Times |
| Q.16: Enlist types of respiration of frog. | 3 Times |
| Q.17: How enzyme substrate complex is formed? | 2 Times |
| Q.18: How the body of Earthwork is kept moist? | 1 Time |

Respiration in Man

- | | |
|--|-----------------|
| Q.19: Name different parts of air passage way of man. | 2 Times |
| Q.20: What is difference between glottis and epiglottis? | 4 Times |
| Q.21: What is larynx? | 8 Times |
| Q.22: What is vocal cord? Give its function. | 5 Times |
| Q.23: Differentiate between bronchi and bronchioles. | 5 Times |
| Q.24: What are bronchi, bronchioles and alveoli? | 10 Times |
| Q.25: Differentiate between diaphragm and pleura. | 15 Times |
| Q.26: Define the term alveoli and air sac. | 1 Time |



- Q.27: What is the role of diaphragm in breathing? 1 Time
 Q.28: Enlist function of nasal cavity in man? 1 Time
 Q.29: Define trachea. 1 Time

Mechanism of Breathing in Man

- Q.30: What is respiratory distress syndrome? 11 Times
 Q.31: What is the mechanism of inhalation of air in man? 2 Times
 Q.32: Define Expiration. 3 Times

Transport of Respiratory Gases

- Q.33: Give percentage of CO₂ in venous and arterial blood. 10 Times
 Q.34: How does temperature affect the oxygen carrying capacity of haemoglobin? 3 Times
 Q.35: How does carbon dioxide concentration affect the oxygen carrying capacity of blood Haemoglobin? 6 Times
 Q.36: Write at least two different states of CO₂ transportation in blood. 1 Time
 Q.37: Where carbonic anhydrase enzyme is present? 1 Time
 Q.38: How pH affects the capacity of haemoglobin to combine with oxygen? 3 Times

Respiratory Disorders

- Q.39: Name some respiratory disorders and explain one. 9 Times
 Q.40: What is asthma? Give its two causes. 10 Times
 Q.41: What are the Symptoms of Emphysema? 15 Times
 Q.42: Define Tuberculosis. Give its symptoms. 5 Times
 Q.43: Relate lung cancer with smoking. 2 Times

Role of Respiratory Pigments & Lung Capacities

- Q.44: What is Myoglobin? Describe its function. 7 Times
 Q.45: What is diving reflex? 9 Times
 Q.46: How haemoglobin differ from myoglobin? 6 Times
 Q.47: When the lungs are fully inflated, what is the total inside capacity of lungs? 5 Times
 Q.48: What is normal breathing rate in human? 3 Times
 Q.49: Give composition of inhaled and exhaled air. 9 Times

Unit 14: Transport

Transport in Plants

- Q.1: Differentiate between diffusion and osmosis. 4 Times
 Q.2: What is facilitated diffusion? Give its function. 2 Times
 Q.3: What are plasmodesmata? 1 Time
 Q.4: **Differentiate between apoplast and symplast pathway.** 12 Times

Water Potential & Plasmolysis

- Q.5: Differentiate between water potential and solute potential. 4 Times
 Q.6: What is pressure potential? 2 Times
 Q.7: Differentiate between plasmolysis and deplasmolysis. 6 Times

Ascent of Sap

- Q.8: How guttation differs from imbibition? Explain. 5 Time
 Q.9: What is Bleeding? Name the factors responsible for bleeding. 6 Times
 Q.10: What are Hydathodes? 1 Time
 Q.11: Define Cohesion Tension Theory. 1 Time

Types of Transpiration

- Q.12: What are Lenticels? Give their function. 4 Times
 Q.13: Define transpiration? Give most common type of transpiration? 3 Times
 Q.14: Differentiate between lenticular and stomatal transpiration. 2 Times
 Q.15: How stomata are found in isobilateral leaf? 1 Time
 Q.16: Differentiate between stomata and lenticels. 1 Time
 Q.17: How stomata open? Give one method. 1 Time

Translocation of organic solutes

- Q.18: State pressure flow theory. Who proposed it first? 2 Times
 Q.19: Differentiate between sinks and sources in plants? 1 Time
 Q.20: How sieve tubes and companion cells communicate? 1 Time

Transport in animals

- Q.21: What is open circulatory system? Give an example. 2 Times
 Q.22: Give blood route in cockroach circulatory system. 1 Time



- Q.23: Differentiate between single and double circuit heart with example. **5 Times**
- Q.24: Differentiate between pulmonary and systemic circulation. 8 Times**
- Q.25: How heart sound is produced? 1 Time
- Q.26: Give three basic components of human circulatory system. 1 Time
- Q.27: Differentiate between open and closed circulatory system. 1 Time
- Q.28: What are platelets? Give their role. 3 Times
- Q.29: Give two important chemicals produced by basophils. What functions do they perform? 1 Time
- Q.30: Where the human's heart is located in the body? Give names of layers that surround the heart? 1 Time

Disorders

- Q.31: What are Oedema and Leucaemia? 2 Times
- Q.32: Define thalassemia. 1 Time
- Q.33: What are blue babies? Write its one cause. 17 Times**
- Q.34: What is atherosclerosis, write its cause. 1 Time
- Q.35: What is Hypertension? 4 Times
- Q.36: What is myocardial infarction? 2 Times
- Q.37: Define stroke and write its effects. 2 Times
- Q.38: What is brain hemorrhage? Give its preventive measures. 4 Times
- Q.39: How systolic pressure differs from diastolic pressure? 1 Time
- Q.40: Differentiate between thrombus and embolus. 4 Times

Lymphatic System

- Q.41: What are lymph nodes? What is their function? 4 Times

Immunity and its types

- Q.42: Define immunity and give two types. **6 Times**
- Q.43: What is Humoral Immune Response? 2 Times
- Q.44: What is meant by cell mediated response? 3 Times
- Q.45: Differentiate between Active and Passive immunity. 2 Times
- Q.46: Define Antigen and Antibody. 2 Times
- Q.47: Differentiate between B and T lymphocytes. 1 Time

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