UNIT I

## BIOLOGICAL CLASSIFICATION

1 Mark questions

1. What is dikaryon?
2. Why are the members of deuteromycetes group called fungi imperfecti.?
3. What is the cellwall of Monerans made up of?
4. How many ascospores found in ascus?
5. Why is Euglena known as mixotroph?

2 Marks question

1. What are methanogens?Where are they found?
2. What is the nature of cellwall of diatoms?
3. How are viroids different from viruses?
4. Define herbarium?
5. What is taxonomic hierarchy?
6. Differentiate between zoospore and zygospore of fungi.

3Marks questions

1. Why dinoflagellates known as red tide?
2. Name and explain the three steps in the sexual cycle of fungi.
3. State in brief about the nutrition in fungi.
4. Differentiate between basidium and basidiocarp.
5. What is heterocyst ?State it’s significance.
6. Differentiate between archaebacteria and eubacteria.

5Marks questions

1. State the types of bacteria based on their shapes.
2. State the economic importance of diatomite.
3. Draw a labelled diagram of Nostoc.
4. State the types of archaebacteria with examples.
5. Draw a labelled diagram of Bacteriophage.
6. Describe the special features of T.M.V
7. Describe the four groups of protozoa.
8. Differentiate between ascus and basidium.
9. Lichen is pollution indicator-explain.

## ANIMAL KINGDOM AND PLANT KINGDOM

1 mark question

1. What ismesoglea?
2. Define cephalisation?
3. Why urochordates are called tunicates?
4. Why cartilaginous fish swim constantly?
5. Name the reptile with four chambered heart?
6. What is phycocolloid ? Give example.
7. When and where does meiosis occur in pteridophyte?
8. What is a strobilus in plant like Selaginellasp?
9. Name the first group of land plant possessing vascular tissue.
10 .Name the characteristic pigment found in Rhodophyceae.

2marks question

1.Differentiate isogamy and anisogamy.
2.What is gemmae? Give example.
3.Why is endosperm of angiosperm triploid?
4.What are heterosporousfern?give example.
5.How many cells are found in egg apparatus?
6.Differentiate between Arthropoda and annelida.
7.Differentiate between cnidarian and ctenophora
8.How important is the presence of airbladder in Pisces?
9.State the modifications of birds for flight.
10.Write in brief –metagenesis.

3marks question.

1.Describe the canal system of sponges and watervascular system in Echinodermata.
2.Classify vertebrates based on their distinguishing features.
3.Differentiate Echinodermata and Mollusca.

4.Differentiate Aves and Mammalia.

6.What is heterospory? Briefly comment on its evolutionary significance.

7.Explain –gametophyte is dependent on sporophyte in Dryopteris and vice versa in Funaria.

8Differentiate between haplontic and diplontic lifecycle.

9.Differentiate between liverworts and moss.

10.Explain the types of algae with their pigments and stored food

5marks question.

1.Describe the different levels of organization of body of animals with example for each.

2.How the study on coelom helps in classification?Explain with diagram.

3.Mention six characters of hemichordate.

4.State schematic representation on life cycle of algae.

5.Draw the labelled diagram of hemichordate.

6.State the evolution found based on the heart structure of chordate.

7.Explain-protonema,antheridium,archegonium,sporophyll,zygote.

8.Write note on sexual reproduction in gymnosperm.

9.Explain double fertilization.

10.Give the schematic representation of lifecycle of pteridophyte/gymnosperm/angiosperm

## UNIT II

Very Short Answer Questions (1 mark each)

1. Name the tissue which contains Haversian canals.

2. Mention two special properties of nervous tissues.

3. Name the large cells present in adipose tissue.

4. Name the cells responsible for clotting of blood.

5. What are exocrine glands ?

6. What forms the cambial ring in a dicot stem during the secondary growth ?

7. Name the anatomical layer in the root from which the lateral branches of root originate.

Five mark questions

1. i) Write the floral formula of a flower which is bisexual, zygomorphic, gamosepalous with five sepals, having five united petals, monoadelphous with ten stamens and is monocarpellary with a superior ovary.
   ii) Write the floral formulae of the families Solanaceae and Liliaceae.
   iii) Draw and label a diagram to show the different regions of a tap root system. (1+2+2)
2. i) Draw the floral diagram and write the floral formula of family Fabaceae.
   ii) With the help of suitable sketch diagrams describe valvate and imbricate aestivation. (3+2)

3.What is secondary growth in plants ? Describe various steps of secondary growth in dicot stem with the help of diagram.

4. Give the distinguishing morphological features of gynoecium of family Fabaceace, Solanaceae and Liliaceae. Draw floral diagrams of Fabaceae and Solanaceae.

## UNIT III
## CELL THE UNIT OF LIFE
### ONE MARK QUESTIONS

1. What is the chief role of plasmodesmata?
2. Which is the smallest known cell?
3. What is the chemical composition of middle lamella?
4. What is a centromere?
5. What is referred to as satellite chromosome?

### TWOMARK QUESTIONS

1. Briefly describe the cell theory?
2. Mention the types of chromosomes based on the position of centromere
3. Differentiate between gram-positive and gram-negative bacteria.
4. What structural and functional characteristics of cilia flagella and centrioles have in common?
5. What are nuclear pores? State their function.

### Threemark

1. What are the characteristics of prokaryotic cell?
2. Briefly give the contributions of the following scientists in formulating the cell theory
    a. Robert Virchow
    b. Schielden and Schwann
3. Is extra genomic DNA present in prokaryotes and eukaryotes? If yes, indicate their location in both the types of organisms.
4. Write the functions of the following
    a. Centromere
    b. SmoothER
    c. GolgiApparatus
5. Eukaryotic cells have organelles which may
    a. Not be bound by a membrane
    b. Bound by a single membrane
    c. Bound by a double membrane

### FIVE MARKS QUESTIONS

1. Describe the typical structure of metaphase chromosome, illustrating it with the help of a diagram.
2. With a neat labelled diagram describe the fluid mosaic model of plasma membrane.
3. Describe the structure of mitochondria with a labelled sketch. Mention its functions.
4. With a neat labelled diagram describe the structure and function of chloroplast.

# Chapter:9 Biomolecules

### Onemark questions

1. What are saturated fatty acids?
2. What are primary metabolites?
3. Among proteins nucleic acids polysaccharides and lipids which is strictly not a macromolecule?
4. What are the active sites of enzymes?
5. Why do oils generally remain in liquid state even in winters?

**Two marks questions.**

1. List the factors which affect the enzymatic activity.
2. Amino acids exist as zwitterions. Give its structure. Why is it formed?
3. Why does starch give blue black colour with iodine?
4. Why do physicians recommend vegetable oils rich in polyunsaturated fat for persons suffering from cardiovascular diseases?
5. How are prosthetic groups different from co-factors?

**Three Marks questions.**

1. Explain the structure of proteins.
2. Explain Watson - Crick Model on DNA structure.
3. Explain competitive inhibition along with an example.
4. Is rubber a primary metabolite or a secondary metabolite? Write four sentences about rubber.
5. Comment on the statement “living state is a non-equilibrium steady- state to be able to perform work”.

**Five marks questions**

1. Explain the different types of enzymes classified based on their function.

2. Describe the various conformations showed by proteins

## CHAPTER-10
## CELLCYCLEANDCELLDIVISION

1. In yeast mitosis is a means of reproduction,Why?

2. Mention the significance of chaismata.
3. Name the stage of meiosis, during which, synaptonemal complex is formed.
4. Name a stain commonly used to colour chromosomes.
5. What attributes does a chromatid require to be classified as a chromosome?

### Two Marks questions

1. Write difference between diplotene and pachytene?
2. Comment on the statement “Meiosis enables the conservation of specific chromosome number of each species even though the process actually results in reduction of chromosome number.”
3. How does cytokinesis in plant cells differ from that in the animal cells?
4. What will be the DNAcontent of a cell atG1after S andG2 if the content after M phase is 2C.
5. If a tissue has at a given time 1024 cells, how many cycles of mitosis had the original parental single cell undergone?

### ThreeMarksQuestions.

1. Distinguish between prophase and telophase? Explain interphase with it’s stages.
2. With neat labelled diagram compare metaphase and anaphase of mitosis.
3. List the difference between prophase and Telophase of mitosis.
4. With neat labelled diagram distinguish between zygotene and diplotene of prophase1
5. Mitochondria and plastids have their own DNA (genetic material). What is known about their fate during nuclear division like mitosis?

### Five marks Question

1. Distinguish between mitosis and meiosis.
2. Describe the stages of prophase-1 of meiosis.
3. Comment on the statement–Telophase is reverse of prophase.
4. Write brief note on the following
   a. Synaptonemal complex
   b. Metaphase plate
5. An organism has two pair of chromosomes (i.e., chromosome number = 4). Diagrammatically represent the chromosomal arrangement during different phases of meiosis-II

# TRANSPORT IN PLANTS

### Very Short Answer Questions (1 mark each)

1. Which part of the root is related with the absorption of water ?
2. What makes the raisins to swell up when kept in water ?
3. Define water potential.
4. What will happen to water potential when a solute is added to water ?

5. A plant cell when kept in a solution got plasmolysed. What was the nature of the solution ?
6. Mention two ways of absorption of water in plants.
7. Which form of sugar is transported through phloem ?
8. Give one example of imbibition.
9. A flowering plant is planted in an earthen pot and irrigated. Urea is added to make the plant grow faster, but after some time the plant dies. Give its possible reason.
10. Why is energy required to develop root pressure ?

**Short Answer Questions-II (2 marks each)**

11. Awell-watered potted herbaceous plant shows wilting in the afternoon of a dry sunny day. Give reason.
12. Do different species of plants growing in the same soil show the same rate of transpiration of a particular time ? Justify your answer.
13. What is casparianstrip ? Write its significance in plants.
14. Xylem transport is unidirectional and phloem transport bi-directional. Why?
15. How is transpiration different from guttation? Give two points.

**Short Answer Questions-I (3 marks each)**

16. When any dry plant material or seeds are kept in water, they swell up.
(a) Name the phenomenon involved in this change.
(b) Define this phenomenon.
(c) Give two conditions essential for the phenomenon to occur.
17. Plants show temporary and permanent wilting. Differentiate between the two. Do any of them indicate the water status of the soil ?
18. What is mycorrhiza ? How is the mycorrhizal association helpful in absorption of water and minerals in plants ?
19. Give the scientific term for the following statements/processes :
(a) Movement of water in roots through the cell wall exclusively.
(b) The positive hydrostatic pressure developed inside the cell or cell wall.
(c) A solution having relatively less concentration.
(d) Loss of water vapour from the aerial parts of the plants in the form of water vapour. (e) Movement of a molecule across a membrane independent of other molecule.
(f) Water loss in its liquid phase through the special openings of veins near the tip of leaves of many herbaceous plants.
20. Describe the pressure flow hypothesis of translocation of sugar in plants.

## MINERAL NUTRITION

Very Short Answer Questions (1 mark each)

1. Name one symbiotic nitrogen-fixing bacteria.
2. Give two examples of photosynthetic micro-organisms, which also fix atmospheric nitrogen.
3. Name two organisms each which fix nitrogen asymbiotically and symbiotically.
4. Name the substance that imparts pink colour to the root nodule of a leguminous plant and also mention its role.

5. What is the term used for mineral deficiency symptom in plants in which leaves became yellow in different pattern ?

Short Answer Questions-II (2 marks each)

6. Differentiate between two types of absorption of minerals in plants from soil.
7. Name the following :
(a) Bacteria which converts ammonia into nitrite.
(b) Bacteria which oxidises nitrite into nitrate.
8. How does Leghemoglobin protect the enzyme nitrogenase ?

Short Answer Questions-I (3 marks each)

9. Write the deficiency symptoms of the following three elements :
(a) Phosphorus
(b) Magnesium
(c) Potassium
10. Describe the following three deficiency symptoms and co-relate them with concerned mineral deficiency :
(a) Chlorosis
(b) Necrosis
(c) Stunted plant growth
11. Explain the steps in biological nitrogen fixation in brief.
12. Describe the two main processes of synthesis of amino acids from Ammonium ion ($NH_4^+$) in plants.

Long Answers (5 marks each)

13. Describe all the steps of nitrogen cycle in nature.
14. Describe with diagrams how root nodules are formed in leguminous plants.

## PHOTOSYNTHESIS IN HIGHER PLANTS

Very Short Answer Questions (1 mark each)

1. Name two photosynthetic pigments belonging to Caretenoids.
2. How many molecules of ATP are required for synthesis of one molecule of glucose in C3 and C4

pathways ?
3. What part of sunlight is most suitable for photosynthesis ?
4. Which one of the photosystems can carry on photophosphorylation independently ?
5. Name two plants that can carry out photosynthesis at night.
6. Under what conditions the affinity of RuBP carboxylase for carbon dioxide and for oxygen increase ?
7. Name the scientist who proposed the C4 pathway.
8. Where does carbon fixation occur in chloroplast ?
9. Which compound acts as CO2 acceptor in Calvin cycle ?
10. Name the end products of light reaction.

Short Answer Questions-II (2 marks each)

11. Why does the rate of photosynthesis decline in the presence of continuous light ?
12. Why do green plants start evolving carbon dioxide instead of oxygen on a hot sunny day ?
13. State two functions of accessory pigments found in thylakoids.
14. Why do C4 plants are more expensive than C3 plants ?

Short Answer Questions-I (3 marks each)

15. When and why does photorespiration take place in plants ? How does this process result in a loss to the plant ?
16. What are the steps that are common to C3 and C4 photosynthesis ?

Long Answer Questions (5 marks each)
17. Describe C4 pathway in a paddy plant. How is this pathway an adaptive advantage to the plant ?
18. Explain the process of biosynthetic phase of photosynthesis occurring in chloroplast.

## RESPIRATION IN PLANTS

Very Short Answer Questions (1 mark each)

1. Name the molecule which is terminal acceptor of electron.
2. How many ATP molecules are produced from a molecule of glucose on it complete oxidation in

eukaryotes ?
3. Where does ETC found in eukaryotic cell ?
4. Name the enzyme which converts sugar into glucose and fructose.
5. How many molecules of ATP are produced by the oxidation of one molecule of $FADH_2$?
6. Why do the person with sufficient white fibres get fatigued in a short period ?
7. Write the name of end product of glycolysis.
8. Name the first product formed in Kerb's cycle.

Short Answer Questions-II (2 marks each)

9. Differentiate between aerobic respiration and anaerobic respiration.
10. Mention two steps of glycolysis in which ATP is utilised.
11. Why does anaerobic respiration produces less energy than aerobic respiration ?
12. Define Respiratory Quotient. What is its value for fat and protein ?
13. Distinguish between glycolysis and fermentation.
14. What are respiratory substrates ? Name the most common respiratory substrate.

Short Answer Questions-I (3 marks each)

15. Give the schematic representation of an overall view of TCA cycle.
16. Where does electron transport system operative in mitochondria ? Explain the system giving the role of oxygen ?
17. Give a brief account of ATP molecules produced in aerobic respiration in eukaryotes.
18. Discuss The respiratory pathway is an amphibolic pathway.

Long Answer Questions (5 marks each)

19. What is glycolysis ? Where does glycolysis takes place in a cell ? Give schematic representation of glycolysis.

## PLANT GROWTH AND DEVELOPMENT

Very Short Answer Questions (1 mark each)

1. Write the cause of 'Bakane' disease of rice.
2. Name the plant hormone which was first isolated from human urine.
3. Name the only gaseous plant hormone.

4. How does abscisic acid acts as stress hormone in drought condition ?
5. A farmer observed some broad-leaved weeds in a wheat crop farm. Which plant hormone would you suggest remove them ?
6. Why do lateral buds start developing into branches when apical bud is removed ?
7. Flowering in certain plant occur only when they are exposed to low temperature for a few weeks. Name this phenomenon.
8. Name the hormone released from over-ripe apples that affects all other apples in a small wooden box.

Short Answer Questions-II (2 marks each)

9. How will you induce lateral branching in a plant which normally does not produce them ? Give reason.
10. What induces ethylene formation in plants ? Give any two different action of ethylene on plants.
11. What is meant by abscission ? Name the phytohormone involved in it.
12. What is meant by apical dominance ? Which hormone control it ?
13. Differentiate between photoperiodism and vernalisation.

Short Answer Questions-I (3 marks each)

14. What would be expected to happen if :
(a) GA3 is applied to rice seedling.
(b) a rotten fruit get mixed with unripe fruits.
(c) you forget to add cytokinin to the culture medium.
15. Which growth hormone is responsible for the following :
(a) induce rooting in a twig
(b) quick ripening of a fruit
(c) delay leaf senescence
(d) 'bolt' a rosette plant
(e) induce immediate stomatal closure in leaves
(f) Induce growth in axillary buds
16. Define differentiation, dedifferentiation and redifferentiation.
17. Where are auxins generally produced in a plant ? Name any one naturally occuring plant auxin and any one synthetic auxin.
18. Define growth rate. Name two types of growth. Give the shape of curve for these growth.
19. Mention various parameter taken into consideration for measuring the growth.

Long Answer Questions (5 marks each)

20. Enlist the five categories of phytohormone. Write at least two uses of each.

## CHAPTER-DIGESTION AND ABSORPTION:

1-MARKS

1. Name the secretions of Goblet cell & parietal cells. [1]
2. Name the three parts of small intestine of man. [1]
3. Which is the largest gland in our body? [1]

4.What is the main function of bile salt? [1]
5. Name the watery fluid secreted from Bruner's gland in duodenum. [1]
6. What is atheroma? [1]
7. What is egestion? [1]
8. What are micelles? [1]
9. What are crypts of lieberkuhn? [1]

2-MARKS

1. What is the role of micelles in the fat absorption? [2]
2. Give two functions of trypsin? [2]
3. What are the specific functions of food? [2]
4. How does fat absorption takes place? [2]
5. How is food absorbed? [2]
6. What are enzymes? [2]
7. If a major part of the small intestine of a mammal be removed, will this affect absorption of food?[2]
8. What is the role of micelles in the fat absorption? [2]
9. Differentiate chylomicron & micelles on the basis of their structural components.[2]

3-MARKS

1. How is DNA content in our food digested in the body? [3]
2. How would it affect the digestion of proteins if there is blockade in the pancreatic duct?[3]
3.What is the action of salivary amylase? Differentiate between lipases and peptidases?[3]
4. It is absolutely not necessary to produce amylase in an active form in our body. But it is not in the case of trypsin. Given reasons.[3]
5. Describe coagulation of milk in alimentary canal. [3]
6. Name three enzymes secreted by pancreas specify the substance and the product of each.[3]

5-MARKS
1. Draw a labeled diagram of human alimentary canal &Describe its different parts.[5]
2.Name the enzymes for protein digestion in the gastric, pancreatic and intestinal, the substrate they digest and products of their action.[5]
3.Explain the absorption of digested products. [5]
4.Draw digestive tract of Human being and lebel its part?

## CHAPTER-BREATHING AND EXCHANGE OF GASES:

1-MARK

1. Define partial pressure of a gas. [1]
2. Name the other pigments which are present in animals besides haemoglobin. [1]
3. What is the difference between alveolar air and inspired air? [1]
4. Define vital capacity. [1]
5. What is the role of carbonic anhydrase in RBC's? [1]
6. What is carbamino haemoglobin? [1]
7. Name the place where actual exchange of gases takes place in insects. [1]

8. What is the percentage of O2 in inspired & expired air? [1]
9. What is the utility of chloride shift? [1]

2-MARKS

1. Give role of intercoastals muscles in respiration. [2]
2. Explain Erythrocytes can carry out anaerobic metabolism only. [2]
3. Describe how our brain gets a continuous supply of oxygen form the atmosphere.[2]
4. What is chloride shift? Explain. [2]
5. Explain briefly the first step is respiration? [2]
6. Write a note on bronchitis and its prevention. [2]
7. What is the difference between carbaminohaemoglobin and oxyhaemoglobin. [2]
8. What is functional residual capacity? [2]
9. Describe the transport of O2 and CO2? [2]

3-MARKS

1. What is hypoxia, artificial hypoxia &Anaemic hypoxia? [3]
2. How is respiration regulated? [3]
3.Differentiate between vital lung capacity and total lung capacity. [3]
4. Explain the mechanism of breathing in humans. [3]
5. Define oxygen dissociation curve? Why it has sigmoidal pattern? [3]
6. What is the role of carbonic anhydrase? Show by series of reactions how carbonic anhydrase starts the reactions leading to the formation of hemoglobinic acid?

5-MARKS

1. Describe transport mechanism of CO2. [5]
2. Describe in brief the respiratory organs of man. [5]

3.Explain how our heart muscles get a continuous supply of atmospheric oxygen.[5]

## CHAPTER-EXCRETORY PRODUCTS AND THEIR ELIMINATION:

1 MARK

1. In which part of nephron filtration takes place? [1]
2. What difference is observed in the ascending and descending limb of Henle's loop witch reference to permeability of water?[1]
3. What is the PH of urine. [1]
4. Name the three kinds of nitrogen excretion. [1]
5. What are podocytes? [1]
6. Besides water, name any two constituents of human sweat. [1]
7. What happens is glomerulonephritis? [1]
8. Name the excretory organ of cockroach. [1]
9. Name the hormone which controls the concentration of sodium in the body. [1]

2 MARKS

1. Differentiate between Rennin and Renin? [2]
2. What are the two intrinsic mechanisms that provide auto regulation of glomerular filtrate? Explain any one of these.[2]
3. How is the permeability of the distal convoluted tubule and the collecting tubule controlled for regulating the water content inside the body?[2]
4.Kidneys do not play a major role in excretion in ammonotelic animals Justify. [2]
5. Define glomerular filtration rate. What is its value in a healthy human? [2]

6. What is the significance of frog's tadpole being ammonetelic and the adult frog being ureotelic?[2]
7. Describe the blood vessels called vasa rectae found in relation to uriniferous tubules. What is their function?[2]
8. What is chief nitrogenaus waste product in birds? Give two advantages of this mode of excretion.[2]
9. Terrestrial animals are generally either ureotelic ar uric telic, Not ammonotelic. Why?[2]

3-MARKS

1. Person suffering from very low blood pressure pass no urine why? What suggestion would you offer for the removal of waste products from the blood in such a situation.[3]
2. Explain briefly how micturation is a reflex process; but is also under some voluntary control.[3]
3. Describe urea cycle. [3]
4. What is a dialysis machine? When is it needed? [3]
5.Suppose the kidneys of a person are damaged, can you predict what is going to happen to him?[3]
6. How does liver both as a digestive as well as an excretory organ? [3]

5-MARKS

1.Describe briefly the structure and function of renal corpuscle. [5]
2.Describe the mechanism of urine formation. [5]
3.Describe the renal excretory system of man. [5]

## CHAPTER- LOCOMOTION AND MOVEMENT:

1 MARK

1. Name the functional contractile unit of muscle. [1]
2. What is arthritis? [1]
3. What is the total member of bones present in the left pectoral girdle and the left arm respectively in a normal human?[1]
4. Name the tissue which connects muscles to the bone? [1]
5. What is the function of myoglobin? [1]
6. What causes fatigue of muscle fibers? [1]
7. What is a tendon? [1]
8. Which type of movable joint makes the hip joint? [1]
9. Name the heaviest and longest bone in the human body? [1]

2-MARK

1.List functions of skeleton in higher animals? [2]
2. Define a joint. [2]
3. What is osteoporosis? Name two factors which are responsible for osteoporosis.[2]
4. Which kinds of muscle fibers are richly found in the extensor muscles present on thebact of human body? What characteristics enable those fibers to serve their purpose?[2]
5. Give differences between red and white muscle fibers, other than color. [2]
6. What are floating ribs? How many of them are there? [2]
7. Why can a red muscle fiber work for a prolonged period, while a white muscle

fibre suffers from fatigue soon?[2]
8. What is the function of girdles? [2]
9. What makes the synovial joints freely movable? List any four types of synovial joints.[2]

3-MARK

1.Explain the initiation of muscle contraction. What is the role of sarcoplasmic reticulum, Myosin head and F – actin during contraction in striated muscles?[3]
2. What are the three types of muscle tissue? Write two characteristic points about the structure of each of them?[3]
3. Represent diagrammatically a sarcomere and label its parts. Which of these parts shorten during muscle contraction?[3]
4. Describe any three disorders of the muscular system. [3]
5. Differentiate between Endoskeleton and Exoskeleton. [3]
6. Explain the following –
a) Antagonistic muscles
b) Tetanus
c) Threshed stimulus

5-MARK

1.What is the role of Ca++ and ATP in muscle contraction? [5]
2.Describe the various kinds of joint in human body. According to mobility giving one example of each.[5]
3.Explain sliding filament theory of muscle contraction. [5]

## CHAPTER- NEURAL CONTROL AND COORDINATION:

1-MARK

1. How does an impulse travel across a synapse? [1]
2. How many pairs of cranial nerves are present in man? [1]
3. What is saltatory conduction? [1]
4 Name the band of nerve fibers that joins the two cerebral hemisphere in mammals.[1]
5. What is threshold stimulus for nerve cell? [1]
6. What is a compound eye? [1]
7. What types of neurons are found in dorsal root of spinal nerve? [1]
8. What is the basic unit of neural system? [1]
9. Why is blind spot devoid of the ability for vision? [1]

2-MARKS

1. What is a reflex? [2]
2. What happens when the membrane of a nerve cell carries out a sodium pump? [2]
3. What are the events that take place at the point of stimulation of axon? [2]
4. Give parts of neuron. [2]
5. Describe the role & location of ciliary body in human eye. [2]
6. What is mosaic vision? [2]
7. Where does cerebrospinal fluid occur in our body? Mention two if its function. [2]
8. What is the chemical and difference between rods & cones? [2]
9. Why are gray matter and white matter contained in human nervous system named so?[2]

3-MARKS

1. Differentiate between dorsal spinal roots and ventral spinal roots. [3]
2. Describe human neural system. [3]
3. Why do giant squids have very thick nerve fiber? [3]
4. Where are synaptic vesicles found? Name their chemical contents? What is the function of these contents?[3]
5. Give the location and function in the human eye, of the following –
(i) cornea (ii) Iris (iii) Vitreous humor[3]
6. Why are nerve impulses conducted more rapidly in myelinated nerve fiber than in a non – myelinated one? Explain.[3]
7. State the role of organ of corti in mechanism of hearing.

5-MARKS

1.Draw a labeled diagram to show the structural view of human ear in the sectional view.[5]
2.What is meant by the resting membrane potential of neuron. How do ion channels& sodium – potassium pumps contribute to the resting potential?[5]
3.Taking one example, describe the functioning of the various components of a spinal reflex arc.[5]

## CHAPTER- CHEMICAL CO – ORDINATION AND INTEGRATION:

1-MARK

1. What are hormones. [1]
2. Name the gland of emergency. [1]
3. Which gland secrete glucagon? [1]
4. Distinguish between diabetes mellitus and diabetes insipidus. [1]
5. Name the hormones of fight or flight. [1]
6. Name the hormone secreted from outermost cellular layer of adrenal cortex? [1]
7. What is the function of Leydeig's cells? [1]
8. Name the gland which secrets vasopressin. [1]
9. Name one mineralocorticoid. [1]

2-MARKS

1.Differentiate hormone &neurohormone? [2]
2. What are gonadotropics? [2]
3. Why oxytocin is called as 'birth hormone'? [2]
4. What usually can cause over secretion of parathormone in human body? List any two effects on the body because of this hormone.[2]
5.What is the function of pineal gland? [2]
6. In general, how steroid hormones do effects changes in their target cells. [2]
7. What is corpus luteum? How does it function as a endocrine gland? [2]
8. Name the gland that functions as a biological clock in our body where it is located? Name its one secretion.[2]

3-MARKS

1.Describe the physiological functions & disorders of thyroid gland. [3]
2. Write full form of ADH and describe how it affects the functioning of kidney tubules.[3]
3. Differentiate between exocrine, endocrine &heterocrine glands. [3]
4. Name the T3 and T4 components of thyroid hormone. Explain their specific function.[3]
5. Differentiate between vitamin, hormone & enzyme. [3]
6. A patient was complaining of frequent urination, excursive thirst, hunger and tiredness. His fasting glucose level was found higher than 130 mg / dLan two occasions :
(i) Name the disease
(ii) Give the root cause of this disease
(iii) Explain why the blood glucose level is higher than 130 mg / dL.[3]

5-MARKS

1.Name the hormone that regulates each of the following and mention the source of it.
A) urinary elimination of water.
B) storage of glucose as glycogen.
C) Na+ and K+ metabolism.
D) Basal metabolic rate
E) Descent of testes iota scrotum[5]
2.Explain the Hormones of adrenal gland and their action on target tissue in a tabular from.[5]
3.Explain the mechanism of hormone action. [5]

## CHAPTER- BODY FLUIDS AND CIRCULATION:

1-MARK

1. Which of the four chambers of the human heart has the thickest muscular wall?[1]
2. Where are RBCs formed from in an adult human? [1]
3. What is ECG technique? [1]
4. In which mammal, the RBC are nucleated? [1]
5. Name any two substances which prevent blood coagulation in uninjured blood vessels.[1]
6. Name the type of granulocytes that play an important role in detoxification? [1]
7. A cardiologist observed an enlarged QR wave in the ECG of a patient. What does it indicate?[1]
8. Name the double layered membranous covering of the heart. [1]
9. Why lymphatic circulation takes place very slowly? [1]

2-MARKS

1Distinguish between mitral and tricuspid value? [2]
2. Why does the fish heart pump only deoxygenated blood? [2]
3. How is heart failure different from heart attack? [2]
4. Why is closed circulatory system considered advantageous? [2]
5. What it is the name of the straw coloured fluid left after clotting of blood? How is it different from blood?[2]
6. Why is swelling of feet of leg caused when a person stands immobile for a long time?[2]
7. How are the two heart sounds produced during cardiac cycle? Which one of these is of longer duration?[2]
8. What is average number of thrombocytes in blood? What is their function? [2]

3-MARKS

1What is cardiac cycle? [3]
2. Differentiate between right ventricle and left ventricle. [3]
3Write a note on “Regulation of cardiac activity”? [3]
4. Why does lymph contain much less proteins than the blood plasma? Name the two principal lymph vessels in humans.[3]
5. Differentiate between arteries and veins. [3]
6. Explain the chemical events that take place to form a blood clot to seal the wound?[3]

5-MARKS

1.Describe the structure of human heart. [5]
2.What is lymphatic system? Discuss its importance. [5]
3.Explain double circulation with the help of diagram. [5]