CLASS – XI

BIOLOGY

CLASS – XI

SUBJECT – BIOLOGY

UNIT – I

DIVERSITY IN THE LIVING WORLD

Very Short questions carrying one mark :

1. Who proposed the Binomial System of classification?
2. Name the taxon (category) in which related genra are placed.
3. Write the taxonomical categories in hierarchical order.
4. Give biological name for Man and Housefly.
5. Give the full form for ICBN, ICZN.
6. What is a genus?
7. Define taxon.
8. Define Species.
9. Who proposed the five Kingdom system of classification?
10. Name the five Kingdoms as proposed by Whittaker.
11. Expand TMV.
12. What is the common name given to cyanobacteria?
13. Name two bacteria that fix atmospheric nitrogen.
14. Name the Kingdom under which prokaryotes are placed.
15. Give an example of a parasitic flagellated Protozoan.
16. Give an example of an aquatic ciliated Protozoan.
17. How do viroids differ from viruses?
18. Which type of pigment dominates in blue-green alga?
19. Name any siphonaceous alga.
20. Give an example of a plant which produces seed but no fruit.
21. Name the smallest angiospermic plant.
22. What is the genetic constitution of endosperm in angiosperms?
23. Name the Phylum of the animal Kingdom that has cellular level of organization.
24. Name any two Phylums where the animals exhibit radial symmetry.
25. What do we mean by the term coelom.
26. What do we mean by the notochord?
27. Give two examples of phylum-Hemichordata.
28. Define haemocoel.

29. Define metamerism.
30. Animals and plants are best Protected in

    (a) Zoos (b) Botanical gardens (c) sanctuaries (d) National Park.
31. Which of the following cover the greater numbers of organisms.

    (a) Phyllum (b) Genus (c) Family (d) Class
32. A living organism can be unexceptionally differentiated from a non living structure on the basis of

    (a) Reproduction (b) growth& movement (c) Interaction with environment and Progressive evolution (d) Responsiveness
33. Nutrition involving feeding on dead & decaying organisms is

    (a) Holozoic (b) saprotrophic (c) Parasitic (d) Autotrophic
34. Outer Protein covering of virus is

    (a) Virion (b) Viroid (c) capsid (d) coat
35. who Proposed the term Protista?

    (a) Ernst Hackel (b) Short (c) Garnham (d) Flemming
36. Male sex organ in a flower is the _____.

    (a) Anther (b) Filament (iii) Pistil (iv) stamen
37. In Platyhelminthes, Level of organisation is _____.

    (a) cellular (ii) Tissue (iii) organ (iv) organ & organ system.
38. Which of the following have 'Radial symmetry?

    (a) Coelenterate (ii) Annelida (iii) Mollusca (iv) Chordata
39. Which one is not a coelenterate?

    (a) Sea Fan (2) Sea anemone (c) Sea cucumber (iv) Sea Pen

UNIT – II

STRUCTURAL ORGANISATION IN PLANTS AND ANIMALS

Very Short questions carrying one mark :

1. What are pneumatophores?
2. Name the different kinds of compound leaves.
3. Name a free floating aquatic plant with photosynthetic roots.
4. Define phyllotaxy.
5. What is phyllode?
6. Name two plants that produce rhizomes.
7. What is the role of lenticels?
8. Name the outer covering of seed.
9. Name the three kinds of meristem.
10. Give the botanical name of Peepal.
11. Define open vascular bundle.
12. What category of a permanent plant cell is companion cell?
13. Name two example of fruit having sclereids.
14. What is the function of companion cell?
15. What type of tissue constitutes calyptrogen?
16. What is other name of cork?
17. What is plastochron?
18. What makes the root's apical meristem subterminal?
19. Write two functions of casparian strips in plant roots?
20. What use are phloem fibres put to?
21. Name the types of agranulocytes?
22. What is haemoglobin?
23. What is diapedesis?
24. Give the example of brush-bordered cuboidal epithelium?
25. What do the fibroblasts synthesize?
26. What does the term amphibian mean?
27. Write down the zoological name of the common Indian frog.
28. _____ is the Pattern of arrangement of leaves on the stem or branch.

    (a) Venation (b) Inflorescence (c) Phyllotaxy (d) Pneumatophore
29. Name the kind of Phyllotaxy in Mustard.

(a) Alternate (b) opposite (iii) Whorled (iv) both opposite and Whorled.

30. In Pea, the tendrils are modified _____

(a) stem branches (ii) stipules (iii) Root (iv) Leaves.

31. In Coconut, the fruit is known as _____

(a) Drupe (ii) Berry (iii) cypsela (iv) Cremocarp.

32. Duramen is _____

(a) Sapwood (ii) Heartwood (iii) Bark (iv) Periderm

33. _____Permit the exchange of gases between the outer atmosphere and the internal tissue of the stem.

(a) Lenticells (ii) soft bark (iii) Phellogen (iv) Phelloderm.

34. Sclereids belong to _____.

(a) collenchyma (ii) Xylem (iii) Sclerenchyma fibres. (iv) phloem

35. Casparian thickenings ouccur in the cells of

(a) Pericycle of stem (ii) endodermis of stem (iii) Pericycle of root. (iv) endodermis of root.

36. How many types of cell junctions are found in the epithelium of Animal.

(a) two (b) Four (iii) Three (iv) one

37. On the basis of the mode of Pouring of their secretions, glands are divided into _____categories

(a) two (b) Three (c) Four (d) One

UNIT – III

CELL STRUCTURE AND FUNCTION

Very Short questions carrying one mark :

1. Who coined the term cell?
2. Who proposed the cell theory?
3. Who proposed fluid-mosaic model of plasma-membrane?
4. Name two types of proteins which are present in cell membrane.
5. What is middle lamella?
6. Name two types of endoplasmic reticulum.
7. Define polysome.
8. Name the cell organelle which is called protein factory of the cell.
9. Which cell organelle is called suicidal bag?
10. Who discovered mitochondria?
11. Why are the plastids called kitchens of the cell?
12. Why is nucleus called director of the cell?
13. Give one function of nuclear membrane.
14. Define nucleosome.
15. Name two types of chromatin.
16. Name the cell organelles bounded by single unit membrane.
17. What are dictyosomes?
18. Define tonoplast.
19. Which are building blocks of proteins?
20. List a difference between nucleoside and nucleotide.
21. What are triglycerides?
22. What do you know by amphipathic nature of phospholipids?
23. What do you mean by antiparallel nature of two DNA chains?
24. What are oligosacharides?
25. Name a saturated and an unsaturated fatty acid.
26. What are peptide bonds?
27. Name the sugar present in RNA.
28. Who coined the term enzyme for the first time?
29. Name the nitrogen bases of DNA.
30. Name the sugar present in DNA.
31. Why is mitosis called equational division?

32. Give the site of occurrence of meiosis.
33. What are homologous chromosomes?
34. Define chiasmata.
35. Define karyokinesis.
36. Define crossing over.
37. Give the terms for nuclear division and cytoplasmic division.
38. Who give the term mitosis?
39. Why is meiosis called heterotypical division?
40. Define synapsis.
41. Cellula e Cellula' was Proposed by

    (a) Virchow (b) Lamarck (c) Schleiden (d) Schwann
42. _____are small structures which work like oars causing the movement of either the cell or the surrounding fluid.

    (a) flagella (ii) cilia (iii) Locomotion (iv) Spindle fibers.
43. Sometime a few chromosomes have non-staining secondary constrictions at a constant location. This gives the appearance of a small fragment called_____

    (a) Satellite (ii) Micro bodies (iii) Spheres (iv) Centrosome.
44. The nuclear matrix or the nucleoplasm contains _____.

    (a) nucleus (ii) chromatin (iii) nucleolus (iv) Nuclear Pore
45. The Ribosomes of the chloroplasts(70s) and chromatin are _____than the cytoplasmic ribosomes (80s)

    (a) Small (ii) Large (c) equal (d) extra large.
46. Fluid Mosaic Model of cell membrane is Proposed by

    (a) Singer (ii) Nicolson (iii) virchow (iv) Singer & Nicolson
47. Proteins are linear chains of _____ linked by Peptide

    (a) Ammonia (b) Abrin (c) Amino acids (iv) Anthocyanins
48. In animals, mitotic cell division is only seen in the _____cells.

    (a)Haploid all (b) Diploid cells (c) Diploid Somatic cell (d) Haploid somatic cells
49. Mitosis is divided into _____stages.

(a) One (b) two (iii) four (iv) Five

50. Small disc-shaped structures at the surface of the centrosome are called _____

(a) Kinetochores (b) metaphase plate (c) Spindle fibers (d) cytokinesis

UNIT – IV
PLANT PHYSIOLOGY

Very Short questions carrying one mark :

1. Why do plants die in water logged soil?
2. What is the process of loss of small quantities of water in droplet forms from tip of some leaves called?
3. Which fraction of soil water is available to plants for absorption by roots?
4. Why is energy required to develop root pressure?
5. Who proposed K^+ exchange hypothesis for the opening and closing of stomata?
6. What are antitranspirants?
7. Name the pink pigment present in the root nodules of a leguminous plant?
8. Name the mineral element which is essential for photo-oxidation of water in photosynthesis.
9. Name one most mobile element and one most immobile element.
10. Which of following is non-symbiotic :
    (a) Azotobacter
    (b) Nostoc
    (c) Rhizobium
    (d) None of these
11. Who discovered that green plants require sunlight for their nutrition?
12. Who demonstrated evolution of oxygen during photo-oxidation of water?
13. Name the reaction centres of PS-**I** and PS-**II**.
14. Write one anatomical feature of C_4 Plants.
15. Which pigment is converted to vitamins A by animals and human beings?
16. What is the first stable product of C_4 cycle?
17. Hill reaction occurs in…….
18. Where are ETS coenzymes located in mitochondria?

19. What is zymosis?
20. Which is the raw material in cell respiration?
21. How many high-energy phosphate molecules are formed from one glucose molecule?
22. Where do most of the Kreb's cycle enzymes occur in mitochondria?
23. Which type of respiration produces water as one of the products?
24. What kind of enzymes are present in mitochondria?
25. Name the enzyme which oxysomes represent.
26. Expand – ABA, NADP.
27. What does an over ripe apple release which affects other apples in the basket.
28. Name the stress hormone in plants that functions during drought.
29. Define growth regulators.
30. What induces parthenocarpy in plants?
31. Define vernalization.
32. Name two synthetic auxins used for inducing the rooting in woody plants.
33. Would a defoliated plant respond to photoperiodic cycle?
34. Define wall pressure.
35. What are hydathodes?
36. What happens to a plant cell when it is placed in a hypotonic solution?
37. Which element is essential part of enzyme urease which catalyzes hydrolysis of urea to Co_2 to NH_4.
38. Who proposed 'Z' scheme and suggested that two photosystems operate in series.
39. Name any two C_4 plants.
40. Name the hormone which increases and decreases the rate of photosynthesis?
41. Which molecules are formed during light reaction?
42. Give single chemical equation of photosynthesis.
43. Why plant cell do not rupture when placed in distilled water?
44. By which process the water reaches the top of a plant?
45. Name the best known symbiotic nitrogen fixing bacterium.
46. What is mineral nutrition?
47. What is hydroponics?
48. A cell placed in hypotonic solution will

    (i) Shrink (ii) Show exosmosis (iii) show endosmosis

    (iv) Not Change in shape or size.

49. Who said that 'Transpiration is necessary evil'

(i) Bose (ii) Steward (iii) Anderson (iv) Curtis

50. Root hair absorbs water from soil through

(i) Turgor Pressure (ii) Ion exchanges (iii) osmosis (4DPD

51. The most abundant element found in plants

(i) carbon (ii) Nitrogen (iii) Iron (iv) Mangnese

52. Hill reaction requires

(i) absence of water (ii) total darkness (iii) high attitude (iv) Presence of ferricyanide

53. Which one has Kranz anatomy?

(i) Maize (ii) Wheat (iii) Rice (iv) Potato

54. Photorespiration in c_3 Plants begin from

(i) glycerate (ii) Phosphogly colate (iii) glycine (iv)phosphoglycerate

55. Lactic acid is formed by the Process of

(i) Fermentation (ii) kreb cycle (iii) HMP (iv) Glycolysis

56. Cellular Respiration first takes place in

(i) cytoplasm (ii) ER (iii) Lysosomes (iv) Golgi bodies

57. Auxins are mostly Produced in_____

(i) Shoot (ii) Root (iii) Meristematic region of stem (iv) Leaf buds.

UNIT – V

HUMAN PHYSIOLOGY

Very Short questions carrying one mark :

1. List the main components of food.
2. Name the essential fatty acid.
3. Which is the largest gland in the body?
4. Name the enzyme that curdles milk.
5. Name the hardest substance in the body.
6. Name three types of intestinal movements.
7. What is the role of Vitamin K?
8. What is the role of iron in our body?
9. Which component of bile cause emulsification of fats?
10. What are chemoautotrophs?
11. What is emulsification?
12. What are microvilli?
13. Write the names of respiratory organs present in human beings.
14. Name two animals which carry anaerobic respiration.
15. Define total lung capacity.
16. Give the name of partition between thorax and abdomen.
17. What is the maximum number of O_2 molecules which one molecule of hamoglobin can carry?
18. What do you mean by aerobic respiration?
19. Which is the site of gaseous exchange in insects?
20. Define hypoxia.
21. What is tidal volume?
22. What is fermentation?
23. Which is the sound producing organ in our body?
24. What is Respiratory Quotient (RQ)?
25. What is chloride shift?
26. What is meant by osmoregulation?
27. What is an excretory system meant for?
28. Which is the functional unit of kidney?
29. What is malpighian body?
30. What is micturition?

31. How do lungs help in excretion?
32. What are ammonotelic animals?
33. What is an artificial kidney?
34. What are uricotelic animals?
35. What are ureotelic animals?
36. Name two additional excretory organs in humans.
37. What is the colour of urine due to?
38. What is the role of girdles in skeleton?
39. What is the contractile unit of muscle fibre called?
40. What is the fatigue of muscles due to?
41. By which tissue, muscles are attached to the bones?
42. What is a muscle twitch?
43. Which compounds provide energy for muscle contraction?
44. How many bones form the cranium?
45. How many number of floating ribs present in human skeleton?
46. Name three ear ossicles.
47. What lubricates the freely movable joint at the shoulder?
48. Name two types of myofilaments in a sarcomere.
49. How many bones form the cranium?
50. Name the chemical released by parasympathetic nervous system.
51. Which part of brain controls the heart?
52. What is the nature of nerve impulse?
53. Name the X^{th} cranial nerve.
54. What is a mixed nerve?
55. What is the coloured part of eye called?
56. Which pigment enables us to see in dark?
57. Name two kinds of ciliary muscles.
58. What is the cause of nyctolopia?
59. Name the bones which help in hearing.
60. What is the orgen of corti meant for?
61. Which part of retina has only cones?
62. Give the name of the passage between middle ear and pharynx.

63. Define a harmone.
64. Name the smallest endocrine gland.
65. Name the harmone produced by adrenal gland?
66. What are inhibiting harmones?
67. What is the cause of diabetes mellitus?
68. Name male and female sex harmones.
69. What are releaser harmones?
70. Give the full farm of ACTH and ICSH.
71. Name the disease caused by the deficiency of vasopressin.
72. Name two harmones of pancreatic islets?
73. Why is oxytocin called 'birth harmone'?
74. Name the neuroharmone which inhibits the secretion of growth harmone from the anterior pituitary gland.
75. What is the study of harmones called?
76. Why do we consider blood as connective tissue?
77. What is the size and weight of human heart?
78. Which side of heart contains oxygenated blood?
79. What is the contraction and relaxation of heart called?
80. Why is the S.A. node called pacemaker of heart?
81. Give the term used for rise in RBC count.
82. Explain the term EEG and ECG.
83. What is the heart skeleton composed of?
84. Why is mammalian heart referred as myogenic?
85. Define blood pressure.
86. What are sinusoids? Where are they found?
87. What is meant by double circulation?
88. What is lymph?
89. Which organ receives only oxygenated blood?
90. Antibodies are produced by……
91. At high attitude, whether erythrocytes in a human increase or decrease?

92. Gastric Juice Contains

1. Pepsin, Lipase and renin

2. trypsin, Lipase and renin

3. trypsin, Pepsin and Lipase

4. trypsin, Pepsin and renin

93. Find out the correctly matched pair

1. Pepsinogen –zymogenic cells

2. Hcl- Goblet cells

3. Mucous- Oxyntic cells

4. Pancreatic juice- Salivary cells

5. Ptyalin juice- Acinar cells

94. Ciliated cells are found in

1. Bronchus 2. Pancreas 3. Liver 4. uterus

95. Exchange of gases between the blood and tissue of the body is called

1. external Respiration 2. Internal Respiration

3. Cellular Respiration 4. Counter-current exchange

96. Thyroxine hormone secreted by-

1. Liver 2. Pancreas 3. Thyroid gland. 4. Adrenal gland.

97. Podocytes are the cells present in

1. Cortex of nephron 2. inner wall of Bowman's capsule

3. outer wall of Bowman's capsule 4. wall of glomerular capillaries.

98. Glucose is taken back from glomerular filterate through

1. Active transport 2. Passive transport 3. Osmosis 4. diffusion

99. Which is the largest bone in the Middle ear.

1. Incus 2. Malleus 3. stapes 4. Cochlea.

100. Motor nerve is

1. olfactory 2. optic3. Oculomotor 4.Vagus

101. Pons Connects

1. Brain with spinal cord 2. Cerebrum with cerebellum

3. Two- lobes of cerebellum 4. Two cerebral hemispheres.

UNIT - I

DIVERSITY IN THE LIVING WORLD

Short questions carrying two mark :

1. Why are living organisms classified?
2. What do we learn from identification of individuals and populations?
3. What is evolutionary classification?
4. What are Lichens and mycorrhiza?
5. Highlight the criteria used for five Kindgom system of classification.
6. Differentiate between gametophyte and sporophyte.
7. Define double fertilization.
8. Enlist the main characters of chlorophyceae.
9. What are the characteristic features of Bryophytes?
10. Enlist the four main characters of Phaeophyceae.
11. What are the fundamental features that form the basis of classification of the animals?
12. Name a jawless vertebrate. Also name the class in which it is included.
13. Name the class of : (a) Cartilagenous fishes, (b) Bony fishes.
14. What are advantages of common names?
15. Write the significance of herbarium.
16. Differentiate between diploblastic and triploblastic animals.
17. What is open and closed circulatory system?
18. Name the excretory organs each of Annelids and Insects.
19. What is circinate ptyxis?
20. Give an example of a plant in which circinate Ptyxis is present.
21. What is metameric segmentation and in which organism is it present?
22. How do protogyny and protandry differ?
23. Differentiate between Anabolism and Catabolism reactions
24. Identify the Phyllum in which adults exhibit radial symmetry and larva Exhibit bilateral symmetry.

UNIT – II

STRUCTURAL ORGANIZATION IN PLANTS AND ANIMALS

Short questions carrying two mark :

1. Distinguish between alternate and whorled Phyllotaxy.
2. Differentiate between root climbers and stem climbers.
3. Mention two types of venation with example.
4. What is imbricate aestivation? Give an example.
5. Potato is a stem and Sweet Potato is a root Justify the statements.
6. What is the difference between simple leaf and compound leaf?
7. What is phyllotaxy? Name three types of phyllotaxy.
8. Give any four examples of secondary meristem.
9. Sieve tubes in angiosperms are associated with specialized parenchyma cells. Name those cells. How do they help sieve tube members.
10. State the difference between functions of collenchyma and parenchyma.
11. Why are mechanical tissues lacking in hydrophytes?
12. Define meristematic tissues. List two characteristics.
13. Name a plant organ where endodermis is absent. Give one basic difference between endodermis and epidermis.
14. Describe sexual dimorphism in cockroach.
15. Discuss the normal and abnormal RBC count.
16. Differentiate between tendon and ligament.
17. How do yellow fat and brown fat differ from each other.
18. Name two fundamental properties of nervous tissue.
19. How do the osteoblasts, osteocytes and osteoclasts differ.
20. Name the mouth parts of cockroach?
21. Write down some secondary functions of Leaves.

UNIT – III

CELL STRUCTURE AND FUNCTIONS

Short questions carrying two mark :

1. List two main differences between a prokaryotic cell and an eukaryotic cell.
2. Give two differences between SER and RER.
3. Why is ER called cell's circulating system?
4. Differentiate between primary cell wall and secondary cell wall.
5. How do cilia and flagella differ from each other?
6. How do cisternae and tubules of endoplasmic reticulum differ from each other?
7. List the natural sources of sucrose and lactose.
8. Differentiate between apoenzyme and coenzyme.
9. Differentiate between essential and non-essential amino acids.
10. What is significance of meiosis?
11. What is G_1-phase? What changes occur in it?
12. What is interphase? Why was it previously known as resting phase?
13. Why is meiosis essential in sexual reproducing organisms?
14. Define crossing over. Give its significance.
15. Differentiate between chromatin and chromosome.
16. List the functions of rough endoplasmic reticulum.
17. Distinguish between :

    (i) extrinsic and intrinsic proteins (ii) Primary and secondary lysosome.
18. Why is plasma membrane called a semi-permeable membrane? Give its significance.
19. Give the cytological term for :

    (a) Ribosome studded components of ER.

    (b) Knob like particles present on inner mitochondrial membrane.
20. Differentiate between euchromatin and heterochromatin.
21. Multicellular organisms have division of Labour.Explain.

UNIT – IV

PLANT PHYSIOLOGY

Short questions carrying two mark :

1. What is an isotonic solution and hypertonic solution?
2. Define plasmolysis and deplasmolysis?
3. What forces are involved in the absorption of water from the soil by root hairs?
4. List the mechanisms that contribute to the ascent of sap in tall trees.
5. What is the role of K^+ ions in the opening of Stomata? Explain.
6. Bring out similarity and difference between leghaemoglobin and haemoglobin.
7. Why do plants of legume family contain more protein than other plants?
8. Which are the two macronutrients that usually play the most important role in limiting plant growth globally?
9. How do some bacteria carry out nitrification? What are such bacteria called?
10. A farmer adds Azotobacter culture to the soil before sowing maize. How does it increase the yield of maize.
11. What are accessory pigments? Name them.
12. Explain the compensation point.
13. State Blackman's Law of limiting factor.
14. What do you mean by Kranz anatomy? Give two examples.
15. "Photosynthesis protects us from harmful ultraviolet radiations of sun". Comment on the statement.
16. What is photorespiration? Name the cell organelles involved in photorespiration.
17. Name the hormones which increase and decrease the rate of Photosynthesis?
18. Which enzymes of the citric acid cycle occur in the inner mitochondrial membrane?
19. What is the primary role of cellular respiration?
20. How proton gradient is established?
21. Give resemblances between cellular respiration and burning.
22. For what purpose is the energy from electron transfers used?
23. Define respiratory quotient. Give the RQ for carbohydrates, fats and proteins.
24. What are redox reactions? What is its role in cellular respiration?
25. Would you expect Soyabean plants to flower if given a daily light exposure of 15 hours? Give reason.

26. Which among the following is a long day plant? Sugarbeet, Sugarcane, Tomato. Why is it so called?

27. What is apical dominance? Name the Hormone that controls apical dominance?

28. What is bolting? What conditions can induce bolting naturally.

29. Rubisco is an enzyme that acts both as a carboxylase and oxygenase. Why do you think that Rubisco carries out more carboxylation in C_4 Plants?

30. By looking at a plant externally, can you tell whether a plant is C_3 or C_4? Why and How?

UNIT V

HUMAN PHYSIOLOGY

Short questions carrying two mark :

1. How would non-secretion of saliva affects digestion of food in our mouth?
2. Give the cause of dental caries. Write dental formula of a child.
3. Name two proteases of pancreatic juice. What are their specific roles?
4. Explain the coagulation of milk in the alimentary canal.
5. What are microvilli? State their two functions.
6. Name three accessory digestive glands of man.
7. What is peristalsis? How does it help in digestion?
8. Differentiate between chyme and chyle.
9. List the conditions of respiration for the respiratory surface.
10. Why is cutaneous respiration most important mode of respiration in Frog?
11. Tracheae of cockroach are non-collapsible tubes. Why?
12. How does respiration fulfil the energy requirement of an organisms?
13. Name the cartilages that support the larynx.
14. How air is cleaned in the nasal chambers?
15. Write down the route adopted by the foul air, while moving out of the lungs in the atmosphere.
16. What are the heart sounds heard through the stethoscope when placed on the chest? What produces them?
17. What is SA-Node? Where is it located?
18. Explain major features of human lymphatic system.
19. How are 'Lub' and 'Dup' sounds produced during cardiac cycle?
20. What is pacemaker?

21. What is meant by systole? What happens to mitral valves and related blood flow during ventricular systole?
22. Differentiate between SA-node and AV-node.
23. How does haemoglobin help in transport of oxygen from lungs to tissues?
24. What is portal vein? Give the significance of hepatic portal vein.
25. What are ureotelic animals? Give two examples.
26. What do you mean by ammonotelic and ureotelic animals? Name one organism of each type.
27. What is uricotelism? In what way is it advantageous to the land animals which lay shelled eggs?
28. What is mictuirition? Give normal constituents of human urine.
29. Define ammonotelism. Name the excretory organs of flatworms.
30. Define uricotelism. Name the excretory organs of cockroach.
31. What is the role of calcium ions in muscle contraction?
32. What makes the synovial joint freely movable? List any two types of synovial joints.
33. What is osteoporosis? Name two factors which are responsible for osteoporosis?
34. What causes muscle fatigue? How is it removed?
35. Write four differences between red muscle fibres and white muscles fibres.
36. Write four differences between exoskeleton and endoskeleton.
37. Human has three kinds of ribs. Name these.
38. What is reflex action? What is its significance?
39. Explain two functions of cerebrospinal fluid.
40. What are rod and cone cells?
41. Name two hormones secreted by thyroid gland. Mention one symptom of hypothyroidism in children and name this disorder.
42. What is muscular dystrophy? Write two symptoms of this disease.
43. Name the secretion of alpha and beta cells of islets of langerhans. Mention the role of these secretions.
44. Distinguish between diabetes mellitus and diabetes insipidus.
45. What is cretinism? Give its any two causes.
46. What forms the corpus luteum? Name the hormone secreted by it.

UNIT – I

DIVERSITY IN THE LIVING WORLD

Short questions carrying four marks.

1. Distinguish between cytotaxonomy and chemotaxonomy.
2. Binomial nomenclature is the most acceptable mode of naming organism. Why?
3. What are the advantages of giving scientific names to organisms?
4. Why was Linnaeus system of classification considered an artificial system?
5. Why is it difficult to devise a perfect phylogenetic classification?
6. What are the inadequacies of two Kingdom system of classification?
7. Write the identifying traits of Monera.
8. Write salient features of viruses.
9. Compare the salient features of Monera with Protista.
10. What are the major modes of locomotion found in Protista.
11. Name the alga which is used for obtaining agar. What are the different uses of agar?
12. List common modes of reproduction in algae.
13. Discuss variou types of symmetry found in the animals.
14. Enlist the unique features of phylum Annelida.
15. List six characters of vertebrates.

UNIT – II

STRUCTURAL ORGANISATION IN PLANTS AND ANIMALS

Short questions carrying four marks :

1. Differentiate between Phylloclade and cladode.
2. Give differences between stem and root.
3. Give any three differences between rhizome and bulb.
4. Give three example of false fruits.
5. Differentiate between stolon and sucker.
6. Why are flowers of cucumber referred to as epigynous?
7. Name the major classes of plasma proteins and describe their function.
8. Briefly describe the structure of hyaline cartilage.
9. List the differences between a bone and cartilage.
10. Give the differences between cilia and microvilli.
11. Write a short note on red blood corpuscles.

12. Write a short note on stilt roots with suitable diagram.
13. Define phyllotaxy. Describe its types.
14. Differentiate between prop roots and stilt roots.
15. Differentiate between collenchyma and sclerenchyma.
16. What are conjoint, collateral and open vascular bundles.
17. Draw T.S. dry bone of mammal.
18. Differentiate between medullated nerve fibre and non-medullated nerve fibre.
19. Mention special features of eye in cockroach.
20. Give the location of hepatic caeca in a cockroach. What is their function.

UNIT – III

CELL STRUCTURE AND FUNCTION

Short questions carrying four marks :

1. State the main function of the following :

   (i) Micochondria, (ii) Golgibodies, (iii) Chloroplasts
2. Write a short note on fluid mosaic model of cell membrane.
3. Write down the main postulates of cell theory.
4. Write a short note on plasmodesmata.
5. Write a short note on chromoplasts.
6. Write a short note on vacuole.
7. Distinguish between monosaccharides and oligosaccharides.
8. Describe the lock and key hypothesis of enzyme action.
9. Differentiate between DNA and RNA.
10. Differentiate between competitive and non-competitive inhibition.
11. Describe the formation of nucleotide.
12. Describe the functions of amino acids.
13. Discuss the formation of fat molecule.
14. Differentiate between essential fatty acids and non-essential fatty acids.
15. Write a short note on structure of tRNA.
16. Write a short note on interphase.
17. Describe pachytene stage of meiosis-I.
18. Differentiate between mitosis & meiosis.
19. How do prokaryotic cells differ from eukaryotic.

UNIT – IV

PLANT PHYSIOLOGY

Short questions carrying four mark :

1. Differentiate between stomata and hydathode? (Three differences)
2. Explain the following terms :
   (i) Guttation
   (ii) Wilting
   (iii) Imbibition
3. What is meant by apoplast pathway? Why does it occur in cortex and not in endodermis?
4. Why is purification of water and nutrient salts so important in studies involving mineral nutrition used by hydroponics?
5. Name the organism involved in symbiotic nitrogen fixation. What are the components needed for this purpose? Explain their role.
6. What is hydroponics? Give two applications of this technique.
7. "All life on earth is bottled sun energy." Justify.
8. Specify how a pentose phosphate is a Co_2 acceptor in the dark reaction of photosynthesis?
9. Describe the role of P_{700} in cyclic electron transport pathway.
10. Define the following :
    (a) Respiration
    (b) Respiratory substrate
    (c) Respiratory quotient
11. What is shuttle system? Give its role also.
12. What are the advantages of anaerobic respiration in living things?
13. Write the significance of citric acid cycle (or TCA cycle).
14. Explain CO_2 compensation point.
15. What is difference between florigen and other growth hormones?
16. What will you do to prevent leaf fall and fruit drop in plants? Support your answer with reason.
17. Explain inhibitory effect of auxins with help of an example.
18. "Both a short day and long day plant produces flower simultaneously in a given place." Explain.
19. How will you induce lateral branching in a plant which normally does not produce them? Give reason in support of your answer.

20. Describe briefly : (i) Arithmetic growth, (ii) Geometric growth, (iii) Sigmoid growth curve.
21. What is phaeophytin? What is the significance of C_4 cycle?
22. "All elements that are present in a plant need not be essential to its survival". Comment.
23. Why that is in certain plants deficiency symptoms appear first in younger parts of the plant, while in others they do so in mature organs?

UNIT – V

HUMAN PHYSIOLOGY

Short questions carrying four marks :

1. List the biological importance of bile.
2. Describe the structure and functions of stomach.
3. How does butter in your food get digested and absorbed in the body? Explain.
4. Name the hormone that stimulates gall bladder to release the bile juice. How does this juice reach the duodenum? Explain the function of bile in fat digestion.
5. Name one enzyme of gastric juice and one of pancreatic juice that are released as proenzymes in the human alimentary canal. Give the substrate and end product of each.
6. Describe the digestion of carbohydrates in human buccal cavity.
7. Trace the main steps of digestion of proteins as food passes through alimentary canal of man.
8. Describe the pulmonary gas exchange.
9. Define tidal volume, total lung capacity, inspiratory reserve volume.
10. Write the role of diaphragm and intercostal muscles in breathing process.
11. Write six differences between breathing and respiration.
12. Describe, how the respiratory gases are exchanged between the blood and alveolar air?
13. How does hemoglobin help in transport of oxygen from the lungs to body tissues?
14. Explain in brief morphology of human lungs.
15. Write a note on nervous control on respiration?
16. What is heart rhythm? Discuss.
17. What is hypertension? What are its causative factors?
18. What is artificial pacemaker? Explain.
19. Describe the coronary circulation.
20. Describe the process of blood clotting.

21. What is lymph? Describe its circulation in brief.
22. Describe the double circulation in mammals.
23. What is arteriosclerosis? Describe its affects on human health.
24. State the importance of counter-current system in renal functioning.
25. State the normal and abnormal constituents of human urine.
26. Describe how the loop of Henle helps in concentrating the urine in terrestrial mammals.
27. Describe the location of juxta-glomerular apparatus in human Kidney. Explain its function.
28. Briefly explain the principle and function of haemodialysis.
29. Describe the role of skin and liver in excretion.
30. Why are movements and locomotion necessary among the animals?
31. Name the category of bones forming the rib cage? How are these articulated to each other to form the cage.
32. Write down the functions of the various parts of the midbrain and hind brain.
33. Write down the general functions of the nervous system.
34. What is colour vision? Name the cells responsible for it.
35. Describe ear ossicles.
36. Explain the structure of cochlea of internal ear of man.
37. Explain any three functions of cerebrospinal fluid.
38. Name the organ or cells which secrete thyroxin and adrenaline. State their functions.
39. Describe the role of ADH in forming hypertonic urine.
40. What form the corpus luteum? Name two hormones secreted by it.

UNIT – III

CELL STRUCTURE AND FUNCTION

Long question with six marks :

1. Give an account of structure and functions of cell wall.
2. With suitable diagram, describe the structure of chloroplast.
3. Describe the structure and functions of a mitochondrion.
4. Describe the structure and functions of a nucleus.
5. Enumerate various types of modifications of plasma membrane. Give their significance.
6. Describe polymorphism in lysosomes.
7. Describe the types of proteins on the basis of their shape and chemical nature.
8. Give full form of RNA. Describe the types of RNA.
9. Give full form of DNA. With suitable diagram, explain the structure of Watson & Crick model of DNA.
10. Enumerate the structural models of proteins.
11. Describe the components and formation of nucleotide. Discuss its functions also.
12. (a) Define an enzyme.

    (b) Describe the properties and functions of enzymes.
13. Describe the various factors affecting enzyme activity.
14. Describe lock & key hypothesis for enzyme action with suitable diagram.
15. Discuss Prophase-I of Meiosis-I with the help of well labelled diagrams.
16. Describe briefly the various stages of mitosis with well labelled diagrams.
17. Describe the events taking place during cell cycle.

UNIT - IV

PLANT PHYSIOLOGY

Long question with six marks :

1. Describe the apoplast and symplast pathways.
2. In what way does the concept of water potential help in explaining water movement?
3. How do plants absorb water? Explain the mechanism.
4. Write explanatory notes on biological nitrogen fixation.
5. Make a list of macronutrients and mention their major functions.
6. Describe the process of symbiotic biological nitrogen fixation.

7. Describe the theories related to translocation of water.
8. "Transpiration is a necessary evil." Comment.
9. Describe C_4 cycle in plants for CO_2 fixation.
10. Draw C_3 cycle occurring in plants.
11. Illustrate the mechanism of electron transport system.
12. Explain the process of glycolysis.

UNIT – V
HUMAN PHYSIOLOGY

Long question with six marks :

1. (a) What changes does the food undergo in the stomach?
   (b) Write down four functions of liver.
2. Describe how proteins are digested in the gut of man.
3. Define digestion. Briefly explain the process of digestion in small intestine of man.
4. Describe the mechanism of respiration.
5. Differentiate between :
   (a) SA node and AV node
   (b) Myogenic and neurogenic heart
6. How does blood flow through heart during different phases of cardiac cycle.
7. Describe various corpuscles found in blood of man?
8. Describe conducting system of Human heart.
9. Explain the process of urine formation in a nephron.
10. Describe the role of ADH and liver in excretions.
11. Describe different types of joints. Give example.
12. Explain in detail, how transmission of nerve impulse takes place through a nerve.
13. What is a synapse? How is the nerve impulse transmitted across a chemical synapse?
14. Describe the structure of internal ear. State its functions.
15. Describe the structure and functions of eye.
16. Describe Physiological functions and disorder of thyroid hormone.
17. Define the term hormone. Give an account of the hormones of anterior Pituitary gland.
18. Discuss the role of testes, ovaries and placenta as endocrine glands.
19. Discuss the disorders associated with malfunctioning of adrenal glands.

SAMPLE PAPER-1

+1 Biology

One marks questions.

1. Which has more number of series, a genus or a family?
2. Name the functional unit of a skeletal muscle.
3. At which stage of cell divisions, the morphology of chromosome can be distinctly studied?
4. Differentiate between Micro and Macro nutrients.
5. The most abundant element found in plants.
   i. Carbon ii. Nitrogen iii. Iron iv. Magnese
6. Lactic acid is formed by the Process of
   i. Fermentation ii. Kreb cycle iii.HMP iv. Glycolysis
7. Which is the largest bone in the Middle Ear?
   i. Incus ii.Malleus iii.Stapes iv. Cochlea.
8. Pons connects
   1. Brain with spinal Cord. 2. Cerebrum with cerebellum
   3. Two-lober of cerebellum 4. Two cerebral hemispheres.

Two marks questions.

9. What are Lichens and mycorrhiza
10. Sieve tobes in angiosperms are associated with specialized Parenchyma cells. Name those cells. How do they help Sieve tube members.
11. Define meristematic tissues, List two characteristics.
12. Name two fundamental Properties of nervous tissue.
13. Differentiate between chromatin & chromosome.
14. List the functions of rough endoplasmic reticulum.
15. What is Photorespiration? Name the cell organelles involved in Photorespiration.
16. Name two Proteases of Pancreatic juice. what are their specific role?

Four marks question

17. Enlist the unique features of Phylum Annelida.
18. List the differences between bone and cartilage.
19. What is lock & key hypothesis of enzyme action.
20. Explain inhibitory effect of auxins with help of an example.
21. Define the following

    (a) Respiration (b) Respiratory Substrate (c) Respiratory quotient.
22. What is artificial Pacemaker? Explain
23. Describe how the loop of Henle helps in concentrating the urine in terrestrial mammals.

Six Marks Question

24. Enumerate the structural model of Proteins

    OR

    Describe the events taking place during cell cycle.

25. Sketch the human digestive system & explain it

    OR

    Sketch the human heart.

26. What is glycolysis & explain its schematic representation of it?

    OR

    Describe the theories related to translocation of water and also explain Transpiration is a necessary evil.

SAMPLE PAPER

+1 Biology

One marks question

1. Animals and Plants are best Protected in

   (i) Zoos (ii) Botanical garden (iii) Santuaries (iv) National Park

2. _____ Permit the exchange of gases between the outer atmosphere and the internal tissue of the stem.

   (i) Lenticells (ii) Soft bark (iii) Phellogen (iv) Phelloderm.

3. Small disc-shaped structures at the surface of the centro some are called _____

   (i) Kinetochores (ii) Metaphase plate (iii) Spindle fibres (iv) Cytokinsis

4. Fluid Mosaic Model of cell membrane is proposed by-

   (i) Singer (ii) Nicolson (iii) Virchow (iv) Singer& Nicolson

5. Thyroxine Harmone secreated by which gland.
6. Largest bone in the middle ear is _____
7. Lactic acid is formed by which Process.
8. The most abundant element found in Plants

   (i) Carbon (ii) Nitrogen (iii) Iron (iv) Mangnese.

Two Marks questions

9. Differentiate between diploblastic and triploblastic animals.
10. Potato is a stem and sweet Potato is a root. Justify the statement
11. What is Phyllotaxy? Name three type of Phyllotaxy.
12. Write down some secondary functions of leaves.
13. Define Crossing over. Give its significance
14. Why is ER called cell's circulating system?
15. State Blackman's Law of Limiting factor?
16. Explain major features of human Lymphatic system.

Four marks questions.

17. Compare the salient features of Monera with Protista.
18. Mention special features of eye in cockroach.
19. How do Prokaryotic cells differ from eukaryotic cell?
20. Explain the following terms

    (i) Guttation (ii) wilting (iii) Imbibition
21. Both a short day and long day plant Produces flower simultaneously in a given place. "Explain.
22. What is arteriosclerosis? Describe its affect on human health.
23. Describe the double circulation in mammals.

Six Marks question

24. What is centromere, How does the position of centromere from the basis of classification of chromosome. Support your answer with a dia. showing the position of centromere or different types chromosome.

    OR

    Enumerate the structural model of Proteins.

25. Explain the Process of glycolysis.

    OR

    Describe c_4 cycle plants for co_2 fixation.

26. (a) Diagrammatically represent structure of Nehphron showing blood vessels, duets & tubules.

    (b) Write down disordered of excretory system.

    OR

    What is a synapse? How is the nerve impulse transmitted across a chemical synapse?