



Brain International School

Vikas Puri, New Delhi

SUBJECT: BIOLOGY

**REVISION SHEET
CLASS-XI**

TERM 1

Chapter -5 Morphology of flowering plants

Multiple Choice Questions (MCQ)

1. The edible part of an apple is:
 - a) Mesocarp
 - b) Endocarp
 - c) Thalamus
 - d) Pericarp
2. Which type of root modification is found in carrots?
 - a) Tap root
 - b) Napiform
 - c) Conical
 - d) Fusiform
3. The arrangement of leaves on the stem is called:
 - a) Phyllotaxy
 - b) Venation
 - c) Placentation
 - d) Phyllode
4. A drupe fruit is characterized by:
 - a) Fleshy mesocarp and stony endocarp
 - b) Dry pericarp
 - c) Multiple seeds
 - d) Hard epicarp

2 Marks Questions

1. Define placentation and name its types.
2. Differentiate between actinomorphic and zygomorphic flowers.
3. Name two examples each of tap roots and fibrous roots.

4. What is the difference between compound and simple leaves?

3 Marks Questions

1. Explain different types of phyllotaxy with examples.
2. Describe the modifications of stem for storage and support.
3. Differentiate between hypogynous and epigynous flowers.
4. Explain any three types of placentation.

5 Marks Questions

1. Describe the various types of inflorescence with examples.
2. Discuss the fruit types in detail with suitable examples.
3. Explain the structure of a typical dicot root with a diagram.
4. Describe the different types of root modifications with examples.

Case Study Questions

1. A horticulturist is trying to identify a plant species. The plant has alternate leaves, actinomorphic flowers, and a drupe fruit. Based on morphology, identify possible plant families and justify.
2. A farmer notices that some plants in his field have swollen roots storing food. Explain the possible types of root modifications seen and their advantages.
3. In a botanical garden, a plant is observed to have seeds enclosed within a hard stony covering inside a fleshy fruit. Identify the type of fruit and its possible advantages for seed dispersal.
4. A researcher compares phyllotaxy patterns in different plants. Suggest how this trait can help in maximizing photosynthesis.

Chapter -6 Anatomy of Flowering Plants

Multiple Choice Questions (MCQ)

1. The Casparian strip is found in:
 - a) Epidermis
 - b) Endodermis
 - c) Cortex
 - d) Pericycle
2. The conducting tissue in plants consists of:
 - a) Xylem and phloem
 - b) Xylem only
 - c) Phloem only
 - d) Cambium
3. In a monocot stem, vascular bundles are:

- a) Open and scattered
- b) Closed and scattered
- c) Open and arranged in a ring
- d) Closed and arranged in a ring

2 Marks Questions

1. Differentiate between open and closed vascular bundles.
2. What is the function of the endodermis in roots?
3. Name the components of phloem.

3 Marks Questions

1. Describe the structure of a monocot root.
2. Explain the difference between dicot and monocot stems.

5 Marks Questions

1. Draw and explain the anatomy of a dicot root.
2. Describe the structure and function of xylem.
3. Explain the adaptations in anatomy of xerophytes and hydrophytes

Chapter- 8 CELL: THE UNIT OF LIFE

Q1.Mcqs

1.Which structures perform the function of mitochondria in bacteria?

- a) Nucleoid
- b) Ribosomes
- c) Cell wall
- d) Mesosomes

2.Choose incorrect match

- a) Chloroplast - Thylakoid
- b) Golgi bodies - Cristae
- c) Mitochondria – Oxysome
- d) Centriole – Microtubules

3.What is a tonoplast?

- a) Outer membrane of mitochondria
- b) Inner membrane of chloroplast

- c) Membrane boundary of the vacuole of plant cells
- d) Cell membrane of a plant cell

Q2. ASSERTION AND REASON QUESTIONS

Assertion(A): The Golgi apparatus mainly performs the function of packaging materials.

Reason(R): Materials to be packed in the form of vesicles from the ER fuse with trans face of the Golgi Apparatus.

Q3. CASE STUDY QUESTION

A chloroplast is a type of membrane-bound organelle known as a plastid that conducts photosynthesis mostly in plant and algal cells. The photosynthetic pigment chlorophyll captures the energy from sunlight, converts it, and stores it in the energy-storage molecules ATP and NADPH while freeing oxygen from water in the cells. The ATP and NADPH is then used to make organic molecules from carbon dioxide in a process known as the Calvin cycle. Chloroplasts carry out a number of other functions, including fatty acid synthesis, much amino acid synthesis, and the immune response in plants. The number of chloroplasts per cell varies from one, in unicellular algae, up to 100 in plants like Arabidopsis and wheat.

i) The ground material in Chloroplast is

- a) Matrix
- b) Stroma
- c) Lamellae
- d) Thylakoid

(ii) When green tomatoes fruits turn to red, then

- a) new chromoplasts are formed
- b) chloroplasts are disintegrated and get converted into chromoplasts
- c) chromoplasts are changed to chloroplasts
- d) none of these

iii.)In chloroplasts, the parallel layering of membranes is suited for

- a) maximum exposure of enzymes
- b) maximum light absorption
- c) minimum light absorption so cells can maintain their temperature
- d) all of these

Q4. Answer the following questions :

i) What does “S” stand for in the 70S and 80S ribosome?

ii) What is a mesosome in a prokaryotic cell? Mention the functions that it performs

iii) . Write the functions of the following:

- a). Centromere
- b). Smooth ER
- c). Centrioles

CHAPTER-9. BIOMOLECULES

Q1.Mcqs

i. An amino acid is essential because it is

- a) used in metabolic pathways
- b) an enzyme
- c) must be taken in food

ii. Example of a typical homopolysaccharide is

- a) Inulin
- b) Suberin
- c) Lignin
- d) Starch

iii) The RNA contains a base uracil in place of

- a) adenine
- b) guanine
- c) cytosine
- d) thymine

Q2. ASSERTION AND REASON QUESTIONS

i Assertion(A): Each enzyme has a substrate binding site in its molecule which forms highly reactive enzymes substrate complex

Reason(R): The enzyme substrate complex is long lived and dissociates into its product and unchanged enzyme.

Q3. CASE STUDY QUESTION

Read the passage carefully and answer the Questions that follows

Lipids form a heterogeneous group but all are made up of carbon hydrogen and oxygen. These are insoluble in water and soluble in organic solvents like acetone, ether, alcohol etc. The number of oxygen atoms is very small compared to carbon atoms. They need a large amount of oxygen for their oxidation to release energy. They could be simple lipids, compound lipids, and derived lipids. Simple lipids are esters of fatty acid and alcohol. Compound lipids are formed when simple lipids combine with another compounds for example glycolipids, phospholipids and lipoproteins. Derived lipids are of various types and important example being steroids.

i) Lipids mainly consist of

(A) Carbon only (B) carbon hydrogen and nitrogen (C) carbon hydrogen and oxygen (D) Hydrogen only

ii) Among the options given non-polymeric molecule is

(A)Nucleic acids (B) proteins (C) Lipids (D) polysaccharides

iii) An example of unsaturated fatty acid is

(A) oleic acid (B) stearic acid (C) Linoleic acid (D) both a and c Answer: (D) both a and c

iv) The number of carbon atoms as compared to oxygen atoms in lipids is

Q4. Answer the following questions :

i)Amino acids exist as zwitter ions. Give its structure. Why is it formed ?

ii). Differentiate between cofactors, coenzymes & prosthetic group

iii) .What is enzymatic competitive inhibition? Give one example?

CHAPTER-10 CELL CYCLE AND CELL DIVISION

Q1.Mcqs

i) A fruit fly has 8 chromosomes (2n) in each of its body cells. What would be the number of chromosomes after S phase of interphase in a cell

a) 4

b) 8

c) 16

d) 32

ii) During G1 phase of cell division

a) RNA and proteins are synthesized

b) cell grows in size

c) decision for cell division occurs

(d) all of these

Q2. ASSERTION AND REASON QUESTIONS

i) **Assertion(A):** DNA synthesis occurs in G1 and G2 periods of cell cycle.

Reason(R): During G1 and G2 phase, the DNA content become double.

Q3. CASE STUDY QUESTION

Read the passage carefully and answer the Questions that follows

The prokaryotic cells are represented by bacteria, blue-green algae, mycoplasma and PPLO (Pleuro Pneumonia like Organisms). They are generally smaller and multiply more rapidly than the eukaryotic cells. They may vary greatly in shape and size. The four basic shapes of bacteria are bacillus (rod like), coccus (spherical), vibrio (comma shaped) and spirillum (spiral). The organisation of the prokaryotic cell is fundamentally similar even though prokaryotes exhibit a wide variety of shapes and functions. All prokaryotes have a cell wall surrounding the cell membrane except in mycoplasma. The fluid matrix filling the cell is the cytoplasm. There is no well-defined nucleus. The genetic material is basically naked, not enveloped by a nuclear membrane. In addition to the genomic DNA (the single chromosome/circular DNA), many bacteria have small circular DNA outside the genomic DNA. These smaller DNA are called plasmids. The plasmid DNA confers certain unique phenotypic characters to such bacteria. One such character is resistance to antibiotics. Nuclear membrane is found in eukaryotes. No organelles, like the ones in eukaryotes, are found in prokaryotic cells except for ribosomes. Prokaryotes have something unique in the form of inclusions. A specialised differentiated form of cell membrane called mesosome is the characteristic of prokaryotes. They are essentially infolding of cell membrane.

1.) _____ is the fluid matrix, which fills the prokaryotic cell.

a.) Cell sap b) Cytoplasm c.) Water d.) Both a & b

2.) Identify incorrect statement

Statement 1 – In prokaryotic cell nucleus is absent..

Statement 2 – In prokaryotic cells genetic material appears naked.

Statement 3 – In prokaryotic cells genetic material not enveloped by a nuclear membrane

Statement 4 – prokaryotic cells do not have a cell wall.

a.) Only 1 b) Only 4 c.) Both 2 & 3 d.) All of the above

3.) Give reason – why genetic material in prokaryotic cell is not enveloped in nuclear membrane

4.) Define mesosome.

5.) Give the any two characteristic of prokaryotic cells.

6.) Enlist the shapes of bacteria are generally occurs.

Q4. Answer the following questions :

- i) Write the characteristic events that takes place in anaphase of mitosis.
- ii) Why is meiosis necessary in sexually reproducing organisms?

Ch -11 Photosynthesis in Higher Plants

Multiple Choice Questions (MCQ)

1. Which pigment is responsible for capturing light energy in photosynthesis?

- a) Chlorophyll-a
- b) Xanthophyll
- c) Carotene
- d) Anthocyanin

2. In C4 plants, the first stable product of CO₂ fixation is:

- a) PGA
- b) PEP
- c) OAA
- d) RuBP

2 Marks Questions

1. Define photophosphorylation.
2. Differentiate between aerobic and anaerobic respiration.
3. What is vernalization?
4. Name the primary respiratory muscles in humans.

3 Marks Questions

1. Explain the role of chlorophyll-a in photosynthesis.
2. Write the equation for aerobic respiration.
3. Describe the role of gibberellins in plant growth.
4. Explain the process of gaseous exchange in alveoli.

5 Marks Questions

1. Describe the light-dependent reactions of photosynthesis in detail.
2. Explain the Krebs cycle with a neat diagram.
3. Discuss the various stages of seed germination.
4. Describe the transport of oxygen in human blood.

Case Study Questions

1. A plant kept in the dark for 48 hours is exposed to light in the presence of CO_2 . Predict the changes in its photosynthetic rate and justify.
2. A student breathes into a closed jar containing a plant in the dark. Predict the changes in oxygen and carbon dioxide concentration inside the jar.
3. A farmer uses gibberellins in his crop. Explain its effect on growth and yield with scientific reasoning.
4. During vigorous exercise, lactic acid accumulates in muscles. Explain the physiological reason behind this and its effect on breathing.

Ch -12 Respiration in Plants

Multiple Choice Questions (MCQ)

1. Which of the following is the site of the Krebs cycle?
 - a) Cytoplasm
 - b) Mitochondrial matrix
 - c) Chloroplast stroma
 - d) Endoplasmic reticulum
2. End product of anaerobic respiration in plants is:
 - a) Lactic acid
 - b) Ethanol
 - c) CO_2 only
 - d) Acetyl-CoA

2 Marks Questions

1. Define photophosphorylation.
2. Differentiate between aerobic and anaerobic respiration.
3. What is vernalization?
4. Name the primary respiratory muscles in humans.

3 Marks Questions

1. Explain the role of chlorophyll-a in photosynthesis.
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Ch -13 Plant Growth and Development

Multiple Choice Questions (MCQ)

1. Which plant hormone promotes cell elongation?
 - a) Auxin
 - b) Cytokinin
 - c) Absciscic acid
 - d) Ethylene
2. The phenomenon of seed germination influenced by light is called:
 - a) Phototropism
 - b) Photoperiodism
 - c) Photoblastic response
 - d) Vernalization

2 Marks Questions

1. Define photophosphorylation.
2. Differentiate between aerobic and anaerobic respiration.
3. What is vernalization?

4. Name the primary respiratory muscles in humans.

3 Marks Questions

1. Explain the role of chlorophyll-a in photosynthesis.
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Case Study Questions

1. A plant kept in the dark for 48 hours is exposed to light in the presence of CO₂. Predict the changes in its photosynthetic rate and justify.
2. A student breathes into a closed jar containing a plant in the dark. Predict the changes in oxygen and carbon dioxide concentration inside the jar.
3. A farmer uses gibberellins in his crop. Explain its effect on growth and yield with scientific reasoning.
4. During vigorous exercise, lactic acid accumulates in muscles. Explain the physiological reason behind this and its effect on breathing.

Ch -14 Breathing and Exchange of Gases

Multiple Choice Questions (MCQ)

1. What is the normal breathing rate in humans at rest?
 - a) 10–12 breaths/min
 - b) 12–16 breaths/min
 - c) 16–20 breaths/min
 - d) 20–24 breaths/min
2. Which part of the brain regulates respiration?
 - a) Cerebrum
 - b) Medulla oblongata
 - c) Cerebellum
 - d) Hypothalamus
3. Exchange of gases in alveoli occurs by:
 - a) Active transport
 - b) Osmosis
 - c) Diffusion
 - d) Facilitated diffusion
4. The oxygen dissociation curve is:

- a) Hyperbolic
- b) Sigmoid
- c) Linear
- d) Parabolic

2 Marks Questions

1. Name the primary respiratory muscles in humans.
2. Define tidal volume and give its normal value.
3. What is partial pressure?
4. State the role of haemoglobin in oxygen transport.

3 Marks Questions

1. Explain the process of gaseous exchange in alveoli.
2. Describe the effect of high altitude on breathing rate.
3. Differentiate between external and internal respiration.
4. Explain the role of medulla oblongata in breathing.

5 Marks Questions

1. Describe the mechanism of breathing in humans with diagrams.
2. Explain the transport of oxygen and carbon dioxide in human blood.
3. Describe the factors affecting oxygen–haemoglobin binding.
4. Explain how breathing is regulated chemically and neurologically.

Case Study Questions

1. During vigorous exercise, lactic acid accumulates in muscles. Explain the physiological reason behind this and its effect on breathing.
2. A patient with asthma experiences difficulty in breathing. Explain the changes occurring in the airways and their effect on gas exchange.
3. At high altitudes, oxygen availability decreases. Discuss how the human body adapts to this situation over time.
4. A person inhales air containing higher than normal CO₂ concentration. Predict and explain the immediate changes in respiratory rate and depth.