Junior Inter - Botany

Unit I and Unit II A



డా॥ కె. వాణీ మనోహర్
సీనియర్ ఫ్యాకల్టీ,
శ్రీచైతన్య విద్యాసంస్థలు,
హైదరాబాద్.

4 Marks Questions

- Explain the evolution of heart in higher animal

I year Intermediate Botany - Unit I and Unit II A - Introduction and Vegetative Morphology

In Unit I of I year intermediate only one very short answer Question is asked. Some of the important questions with answers are as follows. In Unit II A has the weightage of 12 marks. Usually one Long answer and one short answer questions are asked. Sometimes instead of short answer question, two very short answer questions may be asked. Some of the important questions with answers from these two units are as follows.

Unit I - Introduction

1. Who is father of Botany? Which book was written by him?

Ans: Father of Botany is Theopharastus. The book HistoriaPlantarum was written by him

2. Who are herbalists? What do we call the books written by them?

Ans: Botanists who work on medicinal plants are called as Herbalists. The books written by them are called as Herbals.

3. Why Pteridophytes are called as Vascular Cryptogams?

Ans: Pteridophytes are called as Vascular cryptogams because these are the only non-flowering plants with vascular tissues or conducting tissues.

4. Differentiate Parasites and Saprophytes?

Ans: Parasites are those organisms which obtain their food from other living organisms where as Saprophytes absorb soluble organic matter from dead substrates.

5. Differentiate Algae and Fungi.

Ans: Algae are Chlorophyllousthalloid autotrophic plants mostly live in water. Fungi are heterotrophic, achlorophyllousthalloid organisms that live as symbionts or parasites or saprophytes.

6. To which group of plants Chlorella and Spirulina belong? What is their use?

Ans: Chlorella and Spirulina belong to Algae. Both are single celled protein organisms. Chlorella is used in space travels by astronauts as a source of oxygen and food.

7. Define Phytogeography?

Ans: It is study of distribution of plants on earth.

8. Name the branches of botany in which male gametophytes of Angiosperms are studied.

Ans: The branches of botany in which male gametophytes are studied are Palynology and Embryology.

Unit IIA - Vegetative Morphology

Very short Answer Questions

1. Compare the photosynthetic roots of Tinospora with those of Trapa

Ans: Photosynthetic roots of both Tinospora and Trapa are adventitious. In the former the roots are aerial, flat and ribbon shaped with velamen tissue and also involved in absorption of moisture of atmosphere. The roots of Trapa are submerged and also absorb mineral water but do not have velamen.

2. Which underground stem modification is rootless? Give any two examples.

Ans: Stem tuber is the underground modified stem without roots. Ex: Solanumtuberosum, helianthus tuberosus, Stachystubifera.

3. What is cladophyll? How does it differ from Phylloclade?

Ans: Cladophyll is green aerial branch of limited growth that arises in the axil of scale leaf. It has either one or few internodes. It differs from Phylloclade in being always branch arising in the axil of scale leaf and with limited growth.

4. Define contractile roots? Mention their function.

Ans: Modified underground adventitious roots associated with plants with corms like Amorphophallus are called as Contractile roots. They help in maintaining the position of corm in the soil.

5. With which modified stem the term areole is associated? Give an example?

Ans: The term areole is associated with Phylloclades possessing spines. Ex: Opuntia.

6. What is stipule? What type of stipules is seen in Ipomoea quamoclit?

Ans: Stipules are small lateral appendages seen on both sides of leaf base. Ipomoea quamoclit has branched stipules.

7. What is decompound leaf? Give an example.

Ans: Decompound leaf is Pinnate compound leaf whose rachis is repeatedly branched and the terminal rachii have leaflets. Ex: Coriandrumsativum, Daucuscarota.

8. In Citrus the unifoliate compound leaf appears like a simple leaf. Explain.

Ans: Unifoliate compound leaf appears like a simple leaf because it has only one lamina like leaflet.

9. What is the nature of Phyllode in Acacia melanoxylon and Parkinsonia.

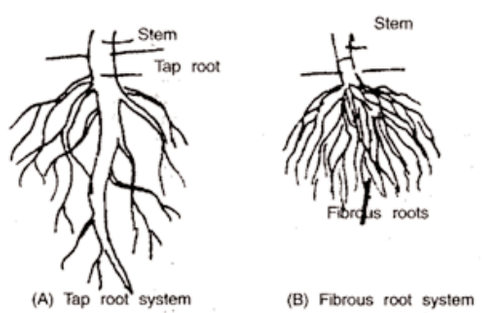
Ans: Phyllode of Acacia melanoxylon is modified petiole and in Parkinsonia it is secondary rachii of bipinnate compound leaf.

Unit IIA - Vegetative Morphology

1. Define root. Write about the types of root systems

Ans: Root is underground, positively geotropic achlorophyllous plant axis. The two types of root systems are Tap root system and Adventitious root system.

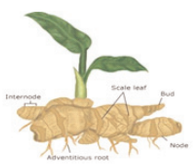
1. Tap root system: It is developed from radicle of embryo. It has direct prolongation of radicle known as Tap root. On this root the lateral roots are developed in acropetal manner. Its roots are dissimilar in size extensively spread. It is seen in Dicots and Gymnosprerms.
2. Adventitious root system: it is formed from any part of the plant other than the radicle. It is usually formed from the base of the stem. Its roots are more or less similar in size and arise as cluster. These are short and thin and also known as fibrous roots. These also have lateral roots. Ex: Monocots, Pteridophytes.



2. Differentiate Rhizome and Corm

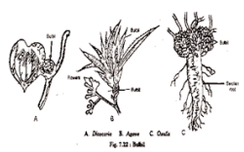
Rhizome Corm

Rhizome	Corm
1. It is horizontally growing underground modified stem	It is vertically growing underground modified stem.
2. It is dorsiventral with adventitious roots on the ventral side	It is not dorsiventral. Adventitious root usually develop from the base.
3. Apical bud is small	Apical bud is large.
4. Contractile roots are absent Ex: *Zingiber*, *Curcuma*	Contractile roots are present. Ex: *Amorphophallus*





3. Differentiate bulb and bulbil



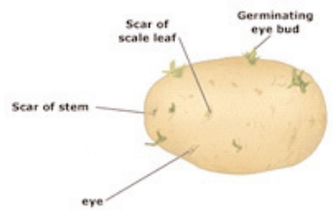


Bulb	Bulbil
1. It is a small, reduced underground stem	1. It is modified vegetative or floral bud.
2. It does not store food materials	2. It stores food materials.
3. Daughter bulbs that develop from the axillary buds grow into new plants	3. Bulbils detached from the parent plant develop into individual plants.
4. It bears adventitious roots on the lower surface. Ex: Allium, Lilium	4. It does not bear adventitious roots till germination. e.g. Dioscorea, Agave, Globba

4. What is stem tuber? How does it differ from tuberous stem?

Ans: it is an underground modified branch whose apices become swollen due to storage of food materials. It has eyes that represent nodes and corky layer known as periderm.

Tuberous Stem	Stem Tuber
1. It is an aerial stem that stores food materials	1. It is swollen tip of underground branch.
2. It has roots	2. It has no roots
3. It is usually green in colour	3. It is brown colored
4. Eyes are absent and not involved in vegetative reproduction. Ex: Brassica oleracea var. gangyloides	4. Eyes are present and involved in vegetative propagation. Ex: Solanumtuberosum



5. What are insectivorous plants? Describe the mechanism of insect trapping in Nepenthes

Ans: Plants that attract, catch, kill and digest the protein part of the insect with the help of their modified leaves known as Trap leaves to full fill their nitrogenous requirement are called as Insectivorous plants or Carnivorous plants. Ex: Nepenthes, Drosera, Utricularia.



The leaf of Nepenthes is variously modified. Its petiole has a basal wing like green structure involved in photosynthesis and apical part of petiole is tendrillar and helps inclimbing. The lamina is modified into a Pitcher like trap and leaf apex is into immobile attractive lid. Rim of the pitcher has nectaries. Inner surface of the pitcher has digestive glands and downwardly bent sharp hairs at the upper region. The pitcher is filled with the digestive fluid rich in Pepsin. The insect is attracted by the lid and alights on the rim of the pitcher. In an attempt to suck the nectar, it slips into the pitcher and drowned in the fluid. It is killed due to suffocation and later the protein part of the insect is digested by the pepsin of the fluid and the digested protein is absorbed by the inner surface of the Pitcher.

Long Answer Questions

1. Describe various Root modifications.
2. Describe any six types of aerial stem modification.
3. Write about sub-aerial stem modifications
4. Describe different leaf modifications with suitable examples.