CBSE TEST PAPER-03

CLASS - XI BIOLOGY (Morphology of Flowering Plants)

General Instruction:

- All questions are compulsory.
- Question No. 1 to 3 carry one mark each. Question No. 4 to 6 carry two marks each. Question No. 7 and 8 carry three marks each. Question No. 9 carry five marks.

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1. What is the term used for a plant bearing both male & female flowers.

2. What are runners?

3. What are three main parts of leaf?

4. Why are flowers of mustard referred to as hypogynous.

5. Explain with suitable examples of different types phyllotaxy.

6. Draw a well labeled diagram of V.S. of maize seed.

7. Write differences between phyllode & phylloclade.

8. How do various leaf modifications help plants?

9. Differentiate between Tuber & Bulb.

10. What are the characteristics of a stem.

11. Describe the aerial modifications of stem.

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[ANSWERS]

1. Monoecious flowers

2. A long creeping stem with long internodes running horizontally on the surface of the soil is called a runner.

3. leaf base, petiole and lamina.

4. Because ovary is situated at the top & other three whorls are inserted below the pistil.

5. Phyllotaxy is the arrangement of leaves on the stem or branch. It can be of two types:-

i) OPPOSITE PHYLLOTAXY:- Two leaves at each node opposite to each other. Eg. calotropis Guava.

ii) WHORLED PHYLLOTAXY:- Where more than two leaves arise at each mode eg. nerium

iii) ALTERNATE PHYLLOTAXY:- Where a single leaf arises at each node in alternate manner. eg. Chinarose, mustrad

6.

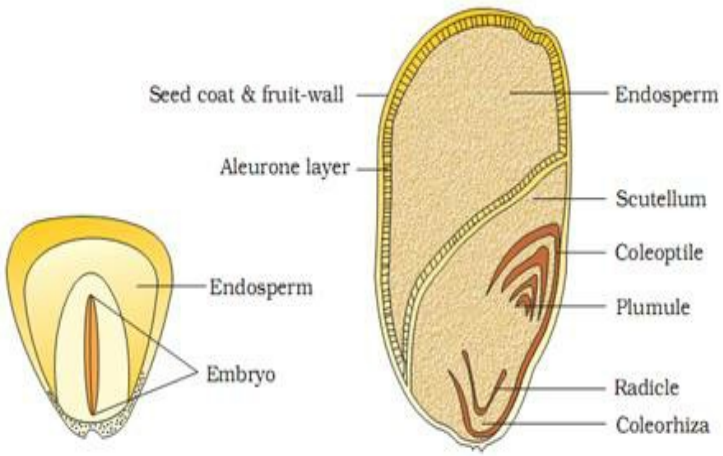

Figure 5.19 Structure of a monocotyledonous seed

7.

PHYLLODE	PHYLLOCLADE

i) Modification of petiole	i) Modification of stem
ii) Bears an bud in its axil	ii) Developed in axial of leaf
iii) Nodes internodes are not borne	iii) Nodes internodes are found.
iv) Does not have leaves & flowers	iv) Has reduced bristles spiny leaves & flowers.

8. The normal functions of leaves are photosynthesis, respiration & transpiration. Besides these function the leaves have to perform other functions. Hence, they modify themselves in different ways as follows:-

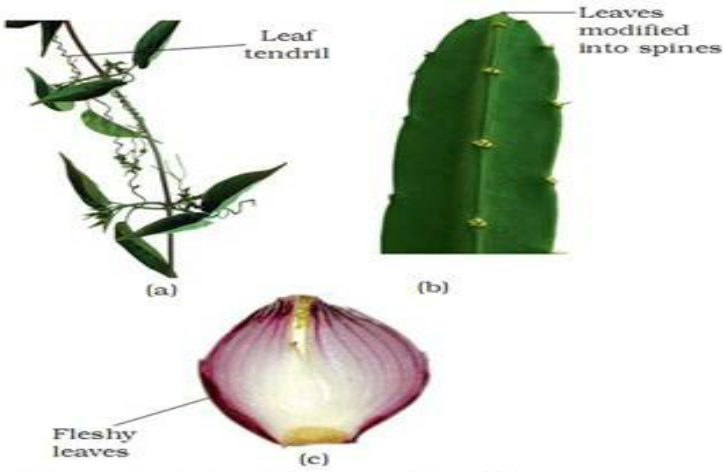

Figure 5.10 Modifications of leaf for : (a) support: tendril (b) protection: spines (c) storage: fleshy leaves

i) TENDRIL:- In some plants the entire leaf or part of it gets modified to coiled thread like structure called tendrils . Tendrils help the plants to climb up eg. pea, clematis.

ii) SPINES:- In many plants the leaves or their apices are modified into thin sharp & pointed structure known as spines. They help in defence eg. opuntia, yucea. Etc.

iii) SCALE LEAVES:- In onion mostly all the leaves are present in the form of fleshy scale leaves.

iv) PITCHER:- It is the modification of leaf in insectivorous plant in which the lamina takes the form of a pitcher, apex in the form of a lid to trap the insects. There are number of digestive glands in the inner walls of the pitcher. These glands secrete a fluid which digests insects eg. Nepenthes.

v) PHYLLODE :- The petiole becomes green, flattened & leaf like & is called phyllode eg.

Australian Acacia.
9.

TUBER (POTATO)	BULB (ONION)
i) Stem is very well developed	i) Stem is reduced to a disc.
ii) Adventitious roots absent	ii) Adventitious roots are present.
iii) Potato plant can bear numerous tubers	iii) Only one bulb develops in one onion plant.
iv) Food is stored in stem.	iv) Food is stored in fleshy scale leaves.
v) Food stored in the form of starch.	v) Food not stored in the form of starch.
vi) Buds external	vi) Buds internal
vii) Distinct nodes & internodes are present	vii) Nodes & internodes are indistinct
viii) Scale leaves found in the nodal region are very small.	viii) Scale leaves are fleshy & conspicuous
ix) The tuber is a total stem.	ix) The bulb is a shoot.

10. It is the ascending part of the axis of branches, leaves, flowers and fruits. It develops from plumule of the embryo of germinating seed. It bears nodes and internodes. It bears buds terminal or axillary. It is generally green when young and woody and dark brown later.

11. AERIAL MODIFICATIONS OF STEM INCLUDES:-

1. STEM TENDRIL:- Stem tendrils are thin leafless slender & spirally coiled structures which develop from auxiliary buds. They help the plant such as cucumber, water melon, grape vine etc. to climb.

2. STEM THORN:- sometimes the auxiliary buds grows into hard, woody straight & pointed structures called thorns. It arises in the axil of leaf or at the tip of branch. Sometimes thorn bears leaves also. They are commonly found on plants eg. citrus durantha, Bougainvillea etc.

3. PHYLLOCLADE:- It is the green flattened or cylindrical stem which takes the form and function of leaf. They contain chlorophyll & carry photosynthesis. They have many nodes & internodes. Their true leaves are reduced, spines or scales. It is commonly found in xerophytic plants eg. opuntia, epiphyllum etc.

4. CLADODE:- This is a phylloclade of limited growth which develops, from the node of the stem or branch & in the axil of a scale leaf eg. asparagus, Ruscus, asculentus etc. cladodes are green flat & leaf like structures which carry on photosynthesis.

5. BULBILS:- This is a modified vegetative or floral bud meant for the production of a new plant. It detaches itself from mother plant & grows into an independent plant. Bulbils are found in oxalis, Agava american, Lilium etc.