
CBSE TEST PAPER-05
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 7 carry two marks each.
 - Question No. 8 to 10 carry three marks each..
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1. Name two plants where seeds do not have endosperm?
2. Which plants part has given rise to following modifications:-
a) Spines of opuntia b) Pitcher of Nepenthes.
3. Why is leaf of Neem called unipinnately compound.
4. Differentiate between true fruit & false fruit.
5. Write the floral formula & draw the floral diagram of family Liliaceae.
6. “Underground parts of a plant are not always roots” justify the statement.
7. How would you differentiate leaflets of a compound leaf from simple leaves on a branch?
8. What is aestivation? What are its different types give examples.
9. Describe the sub- aerial modifications of stem.
10. Explain with examples. What are the different modifications of adventitious roots?

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[ANSWERS]

1. Bean, gram, pea.
2. a) Spines are modified leaf b) Pitcher is a modified leaf.
3. When the mid-rib(rachis) of a pinnately compound leaf directly bears leaflets, it is said to be unipinnate. Thus, leaf of Neem is called unipinnately compound.
- 4.

TRUE FRUIT	FALSE FRUIT
i) it develops from the ovary	i) it develops from other parts along with the ovary
ii) No other part is involved in fruit formation	ii) Thalamus and perianth takes part in fruit formation.
iii) Eg. pea.	iii) Eg. apple.

5. Floral formula: - $\oplus \overset{\text{♂}}{\underset{\text{♀}}{\text{O}}} P_{3+3} A_{3+3} \underline{G}_{(3)}$

Floral diagram: -

6. Usually roots develop below the ground. But in potato, the stem gets modified into “tuber” like structure for the storage of reserve food material. These tubers develop & grow under the ground. Potato is a stem because it bears scale leaves, buds, nodes etc. Ginger, turmeric, zaminkand, *Colocasia* are few more underground stem modification to store food.

7.

SIMPLE LEAF	COMPOUND LEAF
i) Lamina is not divided into distinct lobes or leaflets.	i) Lamina is incised into two or more distinct leaflets.
ii) Axillary bud is present in the axil of simple leaf.	ii) Bud is present in the axil of whole leaf but individual leaflets do not bear.
iii) Simple leaves are in acropetal succession on stem	iii) Leaflets of compound leaf are not in acropetal succession.

iv) Base of leaf may have stipules	iv) Stipules may be present base of whole leaf but individual leaflets do not bear it.
v) Simple leaves appear in one or more plane.	v) Leaflets in a compound leaf lie in one plane only.

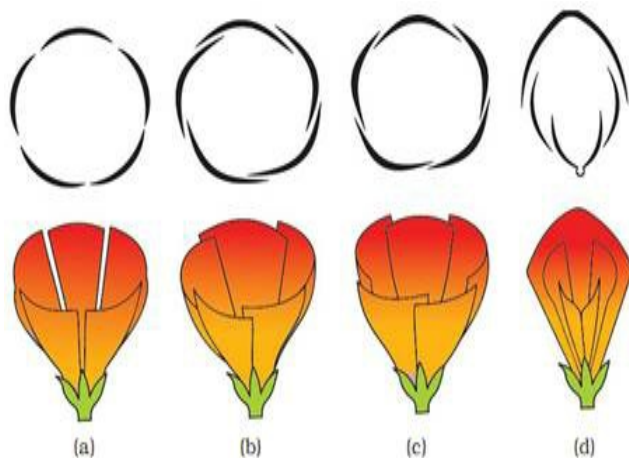
8. The mode of arrangement of sepals or petals in floral bud with respect to the other members of same whorl is known as AESTIVATION. The main types of aestivation are:-

a) VALVATE:- when sepals or petals in a whorl just touch one another at the margin without overlapping eg. calotropis.

b) TWISTED:- if one margin of appendage overlaps that of the next one & so on & is called twisted eg. chinrose, ladyfinger and cotton.

c) IMBRICATE:- If margins of sepals or petals overlaps one another but not in a particular direction eg. cassia & gulmohar.

d) VEXILLARY:- There are five petals the largest(standard) overlaps the two lateral petals (wings) which in turn overlaps the two smallest anterior petals (keel). It is also known as vexillary or papilionaceous. eg. bean, pea.



Types of aestivation in corolla : (a) Valvate (b) Twisted (c) Imbricate (d) Vexillary

9. The main function of sub-aerial modification of stems is vegetative propagation. They are of following types:-

i) RUNNERS:- These stems are long & thin with branches which creep along the ground & develop root at the nodes. Many such branches are produced by mother plant & they spread out in all direction. They may break off & start living as independent plants eg. oxalis, doob grass.

ii) STOLON:- This is also a thin lateral branch which arises from the base of stem. It grows upward & bent down again developing roots at the tip & producing a bud. The bud grows into a new plant eg. mint, strawberry.

iii) OFFSET:- This is a thickened horizontal branch arising in the axil of a lower leaf. It is a short branch which produces a cluster of leaves above & tufts of roots below. Offset can break off from mother plant & start living independent life. Eg. Water lettuce, water hyacinth.

iv) SUCKER:- The sucker is a lateral branch which develops from underground part of stem. It grows upward in obliquely manner & directly give rise to new plant eg. banana, pineapple.

10. MODIFICATIONS OF ADVENTITIOUS ROOTS:-

i) TUBEROUS:- It is swollen root & shapeless occurring singly eg. sweet potato.

ii) FASCICULATED:- Several tuberous roots arise from the same place in a cluster eg. dahlia, Asparagus.

iii) BEADED ROOTS:- These roots have swollen parts at frequent intervals eg. portulaca, vitis.

iv) PROP ROOTS:- These are pillars like roots hanging vertically downward from aerial branch of plant eg. Banyan tree.

v) STILT ROOTS:- The roots are short which grow obliquely from near the base of the main stem & they provide anchorage & support to the stem eg. sugarcane, maize, sorghum.

vi) PARASITIC ROOTS:- These roots penetrate into the host cells & absorb nutrients from host tree eg. cuscutta.

vii) ASSIMTLATORY ROOTS:- Adventitious roots in certain plants become green to carry out photosynthesis & are called assimilatory roots eg. tinospora, trapa.