

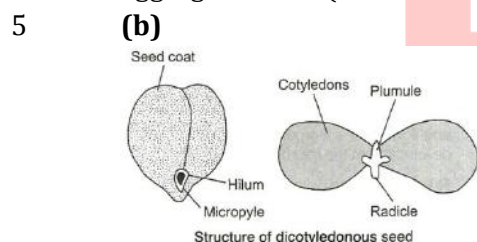
## Topic :- Morphology of Flowering Plants

1 (b)  
In Fabaceae, flowers are zygomorphic, imbricate aestivation, and polypetalous.

2 (a)  
A flower may be trimerous, tetramerous or pentamerous when the floral appendages are in multiples of 3, 4 or 5 respectively. Flowers with bracts, reduced leaf found at the base of the pedicel, are called **bracteates** and those without bracts are called **ebracteate**

3 (d)  
*Daucus carota* contains decomposed type of leaves, in which leaf rachis divided more than three times and gives rise to small axis on which leaflets are arranged.

4 (d)  
According to Hutchinson's general principles adopted for classification of flowering plants, aggregate fruits (taerio of drupe) are more recent than single fruits.



**Seed coat** The seed is covered by two coverings (layers). The outer layer is thick and tough called testa. The inner one is thin and whitish called tegmen.

**Hilum** The concave side of seed is darker with a whitish elongated oval scar called hilum.

**Micropyle** It is the small pore present at the end of hilum. It takes part in absorbing the water during seed germination.

**Cotyledons** They are also called seed leaves. The two cotyledons are attached to embryo axis in between the plumule and radicle. Cotyledons are large, white, kidney-shaped. They store food

6 (d)  
Thalamus or receptacle.

The flower is a reproductive unit in the angiosperms. It is meant for sexual reproduction. A typical flower has four different kinds of whorls arranged successively on the swollen end of the stalk or pedicel called thalamus or receptacle

7 (d)  
A stem with hollow internodes and solid nodes is called culm *e.g.*, bamboo, sugarcane, etc.

8 (a)

Below the root cap the area of new cell formation is called meristematic zone. Behind meristematic zone is the area of cell enlargement. Below this zone, the absorption of water and then mineral takes place. This water and mineral absorption comes under the zone of maturation

9

**(a)**

In some legumes the leaf base may become swollen, which is called the pulvinions. In opposite phyllotaxy, a pair of leaves arises at each node and lie opposite to each other as in *Calotropis* (akon/madar) and guava (*Psidium*) plants.

10

**(a)**

The number of stomata present per  $\text{cm}^2$  of a leaf is known as stomatal frequency. Normally, it ranges from 1000-60000 per  $\text{cm}^2$  or 10-600  $\text{mm}^2$  in different plant species.

11

**(b)**

Thalamiflorae is a series that contains orders Ranales, Parietales, Malvales, etc.

12

**(a)**

In *Euphorbia* of family-Euphorbiaceae and *Ziziphus* of family-Rhamnaceae, the stipules are modified into spines.

13

**(d)**

*Emblica officinalis* is the botanical name of amla and it belongs to family-Euphorbiaceae.

14

**(a)**

**Leaf tendrils** Modified thread/spring-like sensitive structures of leaf or leaf parts, e.g., in sweet pea (*Lathyrus odoratus*).

**Leaflet hooks** In unguis-cati (cat's nail), the terminal leaflet are modified into curved hooks (as of cat) for climbing.

**Pitcher** Lamina in *Nepenthes* is modified into pitcher, which functions in catching and digesting microorganisms or storing water.

**Bladder** In *Utricularia* (an aquatic insectivore), a few leaf segments are modified into bladder (balloon-like structures) for trapping small aquatic organisms.

15

**(a)**

Fruit is the mature ripened ovary of the flower, enclosing the seeds. It is the characteristic feature of Angiospermic plants, e.g., *Brassica*.

16

**(a)**

*Ficus* has hypanthodium inflorescence.

17

**(b)**

Characteristics of stem

(i) Stem develops from plumule of embryo

(ii) Stem is ascending part of the plant axis

(iii) It bears terminal bud growth

(iv) The stem differentiated into nodes and internodes

(v) The young stem is capable of performing photosynthesis

(vi) Stem are usually positively phototropic, negatively geotropic and negatively hydrotropic

18

**(b)**

*Tulipa*, *Allium*, *Lilium*, *Aloe*, *Dracaena*, etc, belong to family-Liliaceae.

19 (a) *Allium cepa* (onion) belongs to family-Amaryllidaceae. The floral formula of *Allium cepa* is  

$$\text{Br} \bullet \oplus \overset{\circ}{\underset{\text{♀}}{\text{P}}}_{(3+3)} \text{A}_{3+3} \text{G}_3$$

20 (d) The corolla of Fabaceae family has five petals, polypetalous, Papilionaceous, descending imbricate aestivation, one posterior long standard, two lateral short wings, two anterior petals joined to each other forming keel.

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	B	A	D	D	B	D	D	A	A	A
Q.	11	12	13	14	15	16	17	18	19	20
A.	B	A	D	A	A	A	B	B	A	D

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