

**Topic :- Morphology of Flowering Plants**

- 1 (b)  
In family-Labiatae, inflorescence is verticillaster, stamens are four didynamous (2+2) and style is gynobasic. The plants are aromatic due to volatile oils, e.g., Leucas (medicinal plant), Ocimum or Tulsi (medicinal), Coleus (ornamental).
- 2 (b)  
Ovules arranged differently in a ovary according to the type of fruit or flower. The arrangement of ovule in the ovary is called placentation
- 3 (b)  
When shoot tip transforms into flower, it is always solitary
- 4 (b)  
Meristematic activity.  
*A typical root possess the four parts or regions*  
(i) **Root Cap** The root is covered at the apex by thimble like structure called root cap. It protects the tender apex of root as it makes its way through soil  
(ii) **Region of Meristematic Activity** Few millimeters above the root cap. The cells of this region are very small, thin walled and dense protoplasm. They divide repeatedly  
(iii) **Region of Elongation** The cells proximal to the meristematic zone undergoes the rapid elongation and enlargement and are responsible for growth of root in length  
(iv) **Region of Maturation** The cells of elongation zone gradually differentiate and mature. This zone lies just proximal to the region of elongation
- 5 (c)  
The fruit of Ananas sativus (pineapple or ananas) is sorosis (a type of multiple fruits), developing from spike, spadix or catkin. In this type, the flowers associate by their succulent petals, the axis bearing them grows and becomes fleshy or woody, thus, the whole inflorescence turns into a compact fruit.
- 6 (a)  
*Cardiospermum* (balloon vine) belongs to family-Sapindaceae. In them, tendrils are found, which are formed from the apices of inflorescence axis.
- 7 (c)  
Family-Asteraceae (Compositae) is characterized by head or capitulum inflorescence, bicarpellary, syncarpous, inferior ovary with basal placentation. The fruit is cypsella.
- 8 (a)  
Axillary buds of stem may also get modified into woody, straight and pointed thorns.

Thorns are found in many plants such as *Citrus*, *Bougainvillea*. They protect the plant from browsing animals

9

**(a)**

In drupe fruit (stone fruit), pericarp is divided into three layers, *i.e.*, Epicarp, mesocarp and endocarp. Endocarp is stony in these fruits. These fruits generally contain one seed rarely two (*Zizyphus*) or these (*Borassus*).

10

**(c)**

Flower is highly condensed and modified shoot meant for sexual reproduction (**Dr. Goethe**; 1790). During the course of evolution, the nodes of the axis of shoot came in contact so, that internodes got reduced, and leaves got modified and specialized to form floral leaves.

11

**(d)**

The androecium of *Hibiscus*, family-Malvaceae possesses stamens indefinite, monoadelphous, stamens form a staminal tube around the style, epipetalous, anthers monothealous, reniform, basifixed. The corolla exhibits inferior twisted aestivation.

12

**(c)**

The major food crops of the world are wheat, rice and maize. All belongs to family-Poaceae. The edible part of these crops is caryopsis fruit.

13

**(d)**

The monocotyledonous embryo of grasses is strikingly different from that of other monocotyledons. The mature embryo has a single cotyledon called **scutellum**. The portion of embryonal axis below scutellum is radicle while the portion of embryonal axis above the level of Scutellum is epicotyl.

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**(b)**

On the basis of the frequency of flowering or fruiting in the lifetime, plants may be either monocarpic or polycarpic. Monocarpic plants are those, in which flowering and fruiting occurs only once in their life, *e.g.*, all annual and biennial plants and some perennial plants like bamboo and *Agave*. In contrast, polycarpic plants bear flowers and fruit repeatedly contrast, polycarpic plants bear flowers and fruits repeatedly after attaining maturity, *e.g.*, mango, *Acacia*, *Eucalyptus*, etc.

15

**(d)**

Generally, the fruit consists of a wall or pericarp and seed. The pericarp may be dry or fleshy. When pericarp is thick and fleshy, it is differentiated into outer epicarp, the middle mesocarp and the inner endocarp

16

**(a)**

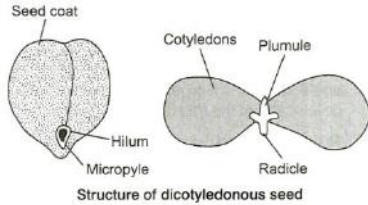
Cyanthium is the characteristic inflorescence of the genus *Euphorbia* (but not the family-Euphorbiaceae).

In cyanthium, five involucre becomes fused and form a cup-shaped structure, which bears a large single female flower surrounded by numerous free male flowers

17

**(c)**

A-Cotyledon B-Plumule, C-Radicle.



**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

18 (c)

The fruit is a characteristic feature of the flowering plant. It is a mature or ripened ovary developed after the fertilisation.

**Simple Fruit** A simple fruit is that fruit which is derived from the ovary a single flower.

Depending upon the state of pericarp in the ripe fruit, a simple fruit can be dry or succulent

19 (a)

When a flower can be divided into two similar halves only in one particular vertical plane, it is called zygomorphic, *e.g.*, bean, pea, gulmohur, *Cassia* etc.

20 (c)

The growth movement in response to air is called aerotropism. Pneumatophores are positively aerotropic.

#### ANSWER-KEY

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