

Topic :-Morphology of Flowering Plants

- 1 **(b)**
A petiole or leaf stalk is a cylindrical or sub-cylindrical structure of a leaf which joins the lamina to the base. Green, flattened petioles may be called winged petioles, e.g., *Citrus* and *Dionaea*.
- 2 **(b)**
Allium, $2n=16$ then endosperm has 24 chromosomes.
Oryza, $2n=24$ then endosperm has 36 chromosomes.
Nicotiana, $2n=48$ then endosperm has 72 chromosomes.
Saccharum $2n=82-124$ (Indian cane) then endosperm has 123-186 chromosomes.
- 3 **(a)**
In wheat or maize (family-Poaceae), the Scutellum is thought to be a modified cotyledon or seed leaf.
- 4 **(a)**
Colchicum autumnale belongs to Liliaceae family
Colchine is obtained from colchicum, which is used to induce polyploidy in tissue culture
- 5 **(a)**
Epiphytic roots are also called hygroscopic roots. Epiphyte bear three types of roots clinging, absorbing and hygroscopic aerial. These roots develop in some orchids, which grow as epiphytes upon the trunks or branches of trees. They hang freely in the air and absorb atmospheric moisture with the help of a special spongy like tissue called velamen. Velamen is modification of epidermis, e.g., *Vanda*, *Dendrobium*, etc.
- 6 **(c)**
Samara is a single seeded fruit developing from a

- superior bi or tricarPELLARY ovary. Pericarp becomes flat like wing, *e.g.*, *Holoptera*.
- 7 **(a)**
Mustard (*Brassica campestris*) belongs to family-Brassicaceae (Cruciferae). Mustard is characterised by tetramerous flower, six stamens with tetradynamous condition (i.e., two stamens of outer whorl are smaller than the four stamens of inner whorl), bicarPELLARY gynoecium and siliqua type of fruit.
- 8 **(b)**
Ruscus belongs to family-Liliaceae (monocot). It produces unisexual flowers.
- 9 **(d)**
Primary roots and its branches constitutes the tap root system as seen in mustard plants (figure A). Roots originate from the base of the stem and constitutes the fibrous root system as seen in wheat plant (figure B)
- 10 **(d)**
The archesporial cells divide periclinally, cutting off primary parietal layer (forming wall later on) towards the outer side and primary sporogenous cells towards the inner side.
- 11 **(d)**
The multiple or composite fruit develops from entire inflorescence. These are known as infructescence.
- 12 **(b)**
Caryopsis is an indehiscent dry simple fruit which develops from monocarPELLARY, unilocular and superior ovary. It is one-seeded fruit in which seed coat is fused with pericarp. Such fruit is also called grain, *e.g.*, members of family-Poaceae.
- 13 **(d)**
Tobacco belongs to family-Solanaceae. Its floral formula is

$$\text{Br} \oplus \underset{\text{♀}}{\text{Q}} \text{K}_{(5)} \text{C}_{(5)} \text{A}_5 \underline{\text{G}(2)}$$
- 14 **(c)**
When the primary root, which develops from the radicle of the embryo remains as the main root throughout the life of the plant and grows straight downwardly in the soil, it is called tap root, *e.g.*,

- roots in dicot plants.
- 15 **(a)**
Rafflesia arnoldi is the largest flower.
- 16 **(a)**
Phyllotaxy is the pattern of arrangement of leaves on the stem or branch. This is usually three types
- 17 **(c)**
Aestivation The mode of arrangement of sepals or petals in floral buds with respect to other members of the same whorl is known as aestivation
Main types of aestivation are
(i) **Valvate** When sepals or petals in a whorl just touch one another at margin without overlapping
e.g., Calotropis
(ii) **Twisted** If one margin of the appendages overlaps that of the next one and so on. *e.g., China rose, cotton, lady's finger*
(ii) **Imbricate** If the margins of sepals or petals overlap one another but not in any particular direction, *e.g., Cassia* and gulmohar
(iv) **Vexillary** In pea and bean flowers, there are five petals, the largest (standard) overlaps the two lateral petals (wings) which in turn overlap the two smallest anterior petals (keel) this type of aestivation is known as vexillary or papilionaceous
- 18 **(c)**
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
- 20 **(a)**
Velamen tissue is found in the aerial roots of certain epiphytic orchids (*e.g., Vanda*). Epiphytic plants are the group of plants, which grow on other plants for attachment purpose.

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

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