

QB365

Important Questions - Morphology of Flowering Plants

11th Standard CBSE

Biology

Reg.No. :

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Time : 01:00:00 Hrs

Total Marks : 50

Section-A

- 1) What do these symbols indicate \oplus and $\%$? 1
- 2) In swampy areas like Sunderbans in West Bengal, plants bear special kind of roots called 1
- 3) Write the floral formula of an actinomorphic, bisexual, hypogynous flower with five united sepals, five free petals, five free stamens and two united carpels with superior ovary and axile placentation. 1
- 4) Describe the fruit of *Allium cepa* (onion). 1
- 5) Where are root hairs present in root? 1
- 6) How superior and inferior ovaries are indicated by symbol? 1
- 7) Give two examples of roots that develop from different parts of the angiospermic plants other than the radicle. 1
- 8) In *Opuntia* the stem is modified into a flattened green structure to perform the function of leaves. Write some other examples of modification of plant parts for the purpose of photosynthesis. 1
- 9) What is pulvines? Give an example of a plant that has pulvines. 1
- 10) Define the term bud. Write the basis of their classification? Name their types. 1

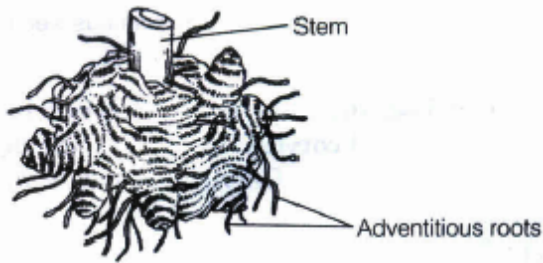
Section-B

- 11) What is root cap? Which any two variations are found in this? 2
- 12) You have heard about several insectivorous plant that feed on insects. *Nepenthes* or the pitcher plant is one such example which usually grows in shallow water or in marsh lands. What part of the plant is modified into a 'pitcher'. How does this modification help the plant for food even though it can photosynthesize like any other green plant? 2
- 13) Write a short note on two main types of roots. 2
- 14) Fill in the following blanks in the table by giving correct information. 2

| Family | Flower | Androecium | Gynoecium | Floral formula |
|------------|--------------------|------------------|----------------------|--|
| Fabaceae | (i) Zygomorphic | (ii).... | (iii) Monocarpellary | (iv)..... |
| Solanaceae | (v).... | (vi) Polyandrous | (vii)..... | $Ebr \oplus K_{(5)} C_{(5)} A_{(5)} G_{(2)}$ |
| Liliaceae | (ix) Actinomorphic | (x) Epiphyllous | (xi)..... | (xii) $Br \text{ or } Ebr \oplus 3+3\overline{3} + 3A_{3+3}g(3)$ |
- 15) Which important pulses belong to family Fabaceae? Give also their scientific names. 2
- 16) Name of the ornamental plants of lily family 2

17) Identify the following diagram and write important features.

2



18) Differentiate between fibrous root and adventitious roots

2

19) Differentiate family-Solanaceae and Liliaceae on the basis of gynoecium.

2

20) The essential functions of roots are anchorage and absorption of water and minerals in the terrestrial plants. What functions are associated with the roots of aquatic plants? How are the roots of aquatic plants and terrestrial plants different?

2

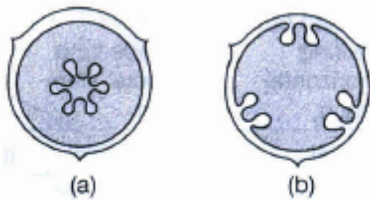
Section-C

21) Name some taxonomic characters to be described.

5

22) Name the type of placentation shown in the given figures and give one example of each.

5



23) Describe the various types of placentations found in flowering plants.

5

24) list out any diagnostic features of family-Liliaceae.

5

Section-A

1) \oplus -Actinomorphic, $\%$ -Zygomorphic

1

2)

1

Pneumatophores. These are respectively roots present in mangrove plants which grow in marshy saline soils

3) $\oplus K_5 C_5 A_5 G_{(2)}$

1

4) A loculicidal capsule with endospermic seeds.

1

5) The root bears unicellular root hairs in the zone of maturation.

1

6) Superior ovary, e.g., G. Inferior ovary, e.g., \overline{G}

1

7) (i) Prop roots in banyan tree from horizontal stem branches.

1

(ii) Stilt roots in maize from lower stem nodes

8) (i) Photosynthesis roots.e.g, Trapa, Tinospora

1

(ii) Phyllode (flattened petiole).e.g., Acacia longifolia

(iii) Foliaceous Stipules e.g Lathyrus aphace

9) Pulvins is the swollen leaf base. It is found in some plants belong to Legumins e.g. pea,bean etc

1

10) Hint Bud is defined as condensed embryonic shoot. 1

Section-B

11) 2

The apex of each root is covered by a cushion of thin-walled cells known as root cap.

(i) Multiple root cap is present in Pandanus

(ii) In aquatic plants, the root apex is enclosed within a sac-like structure called root packet. e.g. Pistia, Eichhornia, etc

12) Part modified into pitcher-Lamina 2

13) 2

Two main type of roots is tap root and adventitious root. Taproot develops from radicle of the embryo, e.g., pea, gram, etc. Adventitious root develops from any part of the plant other than the radicle, e.g., wheat, rice, etc.

14) (ii) Polyandrous (iii) Monocarpellary 2

(v) Actinomorphic

(vii) Bicarpellary

(xi) Tricarpellary

15) Important pulses of family- Fabaceae are as follows 2

Pea Pisum sativum

Gram Cicer arietinum

Urad Phaseolus munga

Masur Lens culinaris

Arhar Cajanus cajan

Syabean Glycine max

16) Asparagus, Ruscus, Yucca, Aloe, Gloriosa, Smilax, TULIPS, LILIES, ETC. 2

17) 2

It is a corm. It is a condensed, fleshy, solid and vertically growing stock with large apical buds. The shape of corm is spherical, flattened on top and bottom. It has number of circular nodes with scales and one or more axillary buds, e.g., Colocasia, Amorphophallus, aladiolus, etc.

18) 2

Differentiate between fibrous root and adventitious roots are

| Fibrous Roots | Adventitious Roots |
|--|---|
| They arise from the radicle | These develop from any part of the plant other than radicle |
| They help in anchorage and absorption. | They help in different functions like storage, climbing, respiration, etc |
| They are found in grasses. | They are found in a variety of plants. |
| They are usually below the soil. | They may be underground or aerial. |

19) Solanaceae Lilliaceae 2

Bicarpellary, bilocular Placentra swollen with many ovules Tricarpellary, trilobular Axile placentation

20) Functions of roots in aquatic plants are

2

- (i) Buoyancy in floating plants.
- (ii) Anchorage in submerged fixed plants.

Differences in roots of aquatic and terrestrial plants are

| Roots of Aquatic plants | Roots of Terrestrial Plants |
|------------------------------------|-----------------------------|
| Poorly developed | Profusely developed |
| Root hair absent | Roots hair present |
| Xylem atrophied (poorly developed) | Xylem well-developed |
| Aerenchyma occurs | Aerenchyma is absent |

Section-C

21)

5

The taxonomic characters to be described are habitat, habit, root, stem, leaves, flowers, inflorescence, calyx, corolla, androecium, gynoecium, fruits, and seeds.

22) (a) Free-central placentation, e.g., primrose.

5

(b) Parietal placentation, e.g., mustard.

23) The arrangement of ovules within the ovary is called placentation.

5

It is the following types

(i) **Marginal** The placenta forms a ridge along the ventral suture and ovules are borne on the ridge, e.g., pea, bean etc

(ii) **Axile** The margins of the carpels fuse to form a central axis on which the ovules are attached. e.g., Hibiscus, Citrus, etc.

(iii) **Parietal** The placenta develops on the ovary wall, e.g., Cucurbita.

(iv) **Basal** The placenta arises from the base of the unilocular ovary and bears a single ovule, e.g., sunflower

(v) **Free-Central** The ovules are borne on central axis and septa are absent, e.g., primrose.

24) Diagnostic features are as follows

5

(i) Mostly perennial herbs

(ii) Flowers, actinomorphic, hypogynous and trimerous.

(iii) Perianth six in two whorls

(iv) Stamens six in two whorls, polyandrous, tricarpeal epiphyllous and anisophyllous
tricarpeal, syncarpous, ovary trilobular with axile placentation.