

	INDIAN SCHOOL AL WADI AL KABIR	
CLASS XI	DEPARTMENT OF SCIENCE 2024 – 2025 SUBJECT: BIOLOGY	DATE: 10/09/2024
WORKSHEET NO : 8	TOPIC: MORPHOLOGY OF FLOWERING PLANTS	NOTE: A4 FILE FORMAT
NAME OF THE STUDENT:	CLASS & SEC	ROLL NO.

I. OBJECTIVE TYPE QUESTIONS (1 MARK EACH)

1. In racemose, flowers are arranged in:

- a) Acropetal order
- b) Centrifugal order
- c) Centripetal order
- d) Basipetal order

2. Androecium is a whorl of:

- a) Anthers
- b) Stamens
- c) Filaments
- d) Style

3. A typical flower with half inferior ovary **embedded or surrounded by the receptacle** called:

- a) Polygamous
- b) Hypogynous
- c) Perigynous
- d) Epigynous

4. Placentation in Solanaceae is:

- a) Parietal

- b) Marginal
- c) Axile
- d) Basal

5. Keel is the characteristic feature of:

- a). Tulip
- b) Peas and beans
- c) Potato
- d. Tomato

ASSERTION AND REASON (1M)

For the following questions two statements are given, one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii), (iv) and (v) as given below:

- i) Both A and R are true and R is the correct explanation of the assertion.**
- ii) Both A and R are true but R is not the correct explanation of the assertion.**
- iii) A is true but R is false.**
- iv) A is false but R is true**
- v) Both A and R are false.**

6. Assertion: An ovule is transformed into a fruit after fertilization.

Reason: The fruits are formed only from ovules.

7. Assertion: Epigynous ovary is always inferior.

Reason: All the floral parts lie above the level of ovary in epigynous condition and, therefore, ovary becomes inferior.

8. Assertion: Bud may form leaves and flowers.

Reason: Bud is a condensed shoot.

9. Assertion: A simple leaf has undivided lamina.

Reason: Leaves showing pinnate and palmate venation have various type of incisions.

10. Assertion: In cymose branching, growth of terminal bud stop after some time.

Reason: The growth of the main stem is definite.

II. SHORT ANSWER TYPE QUESTIONS (2 MARKS EACH)

- 11. Distinguish between fibrous and adventitious roots.
- 12. Draw diagrams of a typical monocot and dicot leaves to show their venation pattern.
- 13. A typical angiosperm flower consists of four floral parts. Give the names of the floral parts and their arrangements sequentially.
- 14. How can you differentiate between free central and axile placentation?

III.SHORT ANSWER TYPE QUESTION (3 MARK EACH)

15. The arrangements of ovules within the ovary is known as placentation. What does the term placenta refer to? Name and draw various types of placentation in the flower as seen in T.S. or V.S.
16. What are the main functions of the stem?
17. Describe the important parts of a leaf.
18. Describe the three types of phyllotaxy found in majority of plants.

IV.LONG ANSWER TYPE QUESTION (5 MARK EACH)

19. Describe the main types of aestivation with the help of simple diagrams?
20. Describe the different regions of the root with the help of a labelled diagram.
21. Write a detailed note on Structure of a Dicotyledonous Seed with the help of labelled diagram.

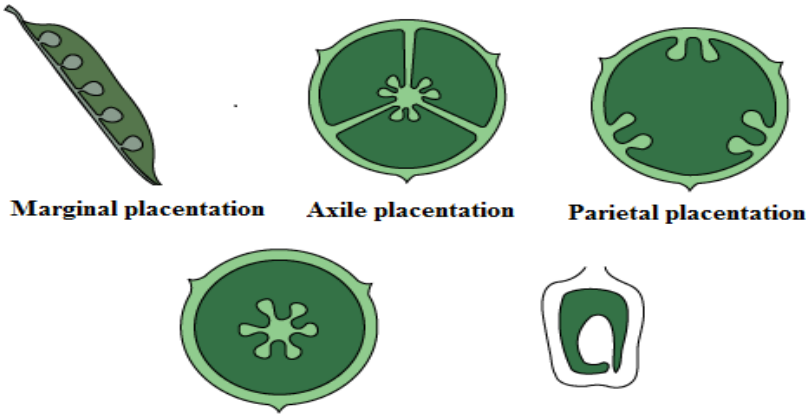
V. CASE STUDY BASED QUESTIONS (4M)

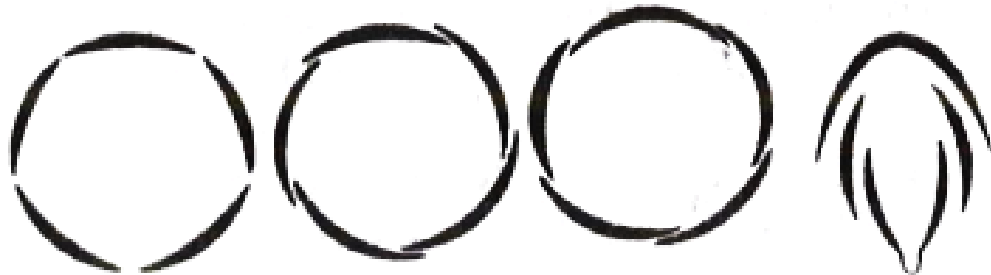
Alex used to go to vegetable market with his grandfather, a retired biology teacher. Grandfather told Alex that brinjal, chillies and tomato belong to the same family of plants and asked him to find out the similarity in these plants. Alex found that it's a large family, commonly called as the 'potato family'. Plants belonging to this family are mostly herbs, shrubs and rarely small trees. Many plants belonging to this family are source of food, spice, medicine, fumigatory, and ornamental.

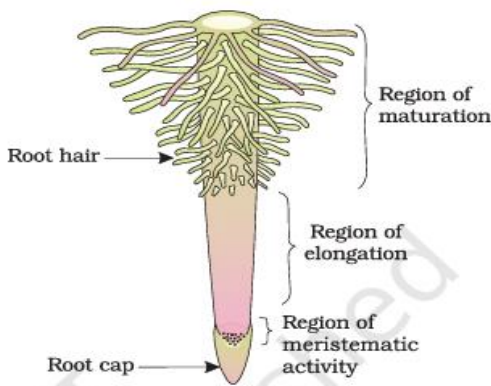
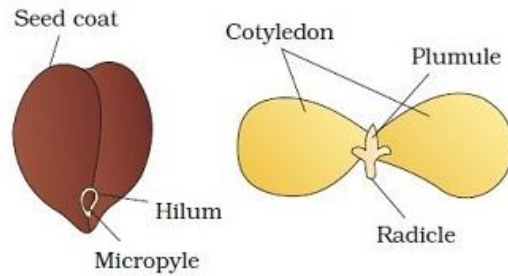
- i. Name the family commonly called as the potato family'?
- ii. Name any two regions where the members of this family are distributed.
- iii. Write about the leaves of this family using semi technical description.
- iv. Write the floral formula of the potato family.

Answers

I	<u>OBJECTIVE TYPE QUESTIONS (1 MARK EACH)</u>	
1	a) Acropetal order	
2	b) Stamens	
3	c) Perigynous	
4	c) Axile	
5	b) Peas and beans	
	<u>ASSERTION AND REASON (1M)</u>	
6	v) Both A and R are false statements.	
7	ii) Both A and R are true but R is the correct explanation of the assertion.	
8	i) Both A and R are true but R is the correct explanation of the assertion.	
9	ii) Both A and R are true but R is not the correct explanation of the assertion.	
10	i) Both A and R are true but R is the correct explanation of the assertion.	
II	<u>SHORT ANSWER TYPE QUESTIONS (2 MARKS EACH)</u>	
11	Fibrous roots grow from the base of the stem, whereas adventitious roots grow from various parts of the plant other than the radicle. Wheat has fibrous roots, whereas plants like the Banyan tree have adventitious roots.	
12	Monocot leaves	Dicot leaves

	
13	A typical flower has four different kinds of whorls arranged successively on the swollen end of the stalk or pedicel, called thalamus or receptacle. These are calyx, corolla, androecium and gynoecium. The calyx is the outermost whorl of the flower and the members are called sepals. Corolla is the second outermost whorl composed of petals. Androecium is the second innermost whorl composed of stamens. Gynoecium is the innermost whorl which is female reproductive part of the flower and is made up of one or more carpels.
14	When the ovules are borne on central axis and septa are absent, as in Dianthus and Primrose the placentation is called free central. When the placenta is axial and the ovules are attached to it in a multilocular ovary, the placentation is said to be axile, as in China rose, tomato and lemon.
III	<u>SHORT ANSWER TYPE QUESTION (3 MARK EACH)</u>
15	The ovules are female reproductive structures and borne in the ovary of the flower. The number, structure, their position in the ovary varies in different plants. They also differ in mode of attachment with the ovary wall. At the point of attachment there is a cellular ridge or cushion of cells called placenta. The mode of attachment of ovule to the placenta is known as placentation which is of the following types: (a) Marginal (b) Axile (c) Parietal (d) Free central (e) Basal.  Marginal placentation Axile placentation Parietal placentation Free central placentation Basal placentation
16	The main functions of the stem are as follows – (a) Spreading out the branches that bear leaves, flowers, and fruits. (b) They help to conduct water and mineral transportation. They also help in photosynthesis. (c) The majority of the stems perform the function of food storage and support. They also provide protection and help in vegetative propagation.
17	The leaf consists of three main parts: leaf base, petiole, and lamina. (a) Leaf base: The leaf base is the part where the leaf is attached to the stem. (b) Petiole: The petiole gives structural support to the blade.

	(c) Lamina: Lamina is the green expanded part of the leaf with veins and veinlets.
18	The three main types: (a) Alternate: Alternate phyllotaxy is when a single leaf arises at each node alternately, the most common example being China rose. (b) Opposite: Opposite phyllotaxy is when a pair of leaves arise at each node and lie opposite each other. The most common example is Calotropis and guava plants. (c) Whorled: Whorled phyllotaxy is when more than two leaves arise at a node and form a whorl. The most common example is Alstonia.
IV	LONG ANSWER TYPE QUESTION (5 MARK EACH)
19.	 Valvate Twisted Imbricate Vexillary Valvate-When sepals or petals in a whorl just touch one another at the margin, without overlapping, as in Calotropis, it is said to be valvate. Twisted- If one margin of the appendage overlaps that of the next one and so on as in china rose, lady's finger and cotton, it is called twisted. Imbricate- If the margins of sepals or petals overlap one another but not in any particular direction as in Cassia and gulmohur, the aestivation is called imbricate. 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.
20	NCERT textbook refer 5.3 Regions of the Root • The root is covered at the apex by a thimble-like structure called the root cap .It protects the tender apex of the root as it makes its way through the soil. • Region of meristematic activity-The cells of this region are very small, thin-walled and with dense protoplasm. They divide repeatedly. • Region of elongation-The cells proximal to this region undergo rapid elongation and enlargement and are responsible for the growth of the root in length. • Region of maturation-The cells of the this zone gradually differentiate and mature. From this region some of the epidermal cells form very fine and delicate, thread-like structures called root hairs. These root hairs absorb water and minerals from the soil.

	 Figure 5.3 The regions of the root-tip
21	The structure of a bean seed is described below: 1. The bean seed is protected by a thin, greenish outermost covering called seed coat. It protects the seed from insects and bacteria as well as from mechanical injury. 2. The seed coat is divided into two parts, the outer part is called Testa and inner part is called Tegmen. Tegmen is a thin membrane that lies under the Testa. 3. On the inner concave side of the seed, there is a scar called Hilum which marks the place where the seed was attached to the fruit wall. 4. Above the hilum is a small pore called Micropyle. The Micropyle absorbs and allows the entry of as much water as is required for germination. 5. On removing the testa and tegmen from a soaked bean seed, the seed is made up of two fleshy seed leaves called the Cotyledons. They contain stored food material which is used by the seedling for growth. 6. In between the two cotyledons is located the delicate embryo which consist of a Radicle and Plumule. The radicle develops into a root, while the plumule develops into a shoot. 
V	CASE STUDY BASED QUESTIONS (4M)
21	i) Solanaceae ii) It is widely distributed in tropics, subtropics and even temperate zones. iii) Alternate, simple, rarely pinnately compound, exstipulate; venation reticulate. iv) $\oplus \varphi K_{(5)} C_{(5)} A_5 \underline{G}_{(2)}$

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