CBTA **FOCUS AREA** REVISION QUESTIONS **MORPHOLOGY OF FLOWERING PLANTS**

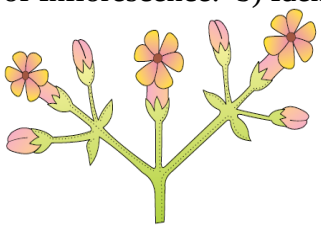
Each question from 1 to 10 carries 1 score.

1) What are adventitious roots? Give one example.
2) Flowers without bracts are called _____.
3) Differentiate between the terms gamosepalous and polysepalous.
4) The swollen end of the pedicel on which the floral whorls are arranged is termed ____.
5) Which part of the stem is modified as tendrils in cucurbits?
6) What is pulvinus ? Where is it seen?
7) A sterile stamen is termed as_____.
8) Define the term aestivation.
9) The stem develops from the_____ of the embryo of a germinating seed.
10) What type of modification is seen in the stem of *Opuntia*?

Each question from 11 to 20 carries 2 scores.

11) Ginger is an example for an underground stem modification. State two functions of this modification.
12) Differentiate between tap root system & fibrous root system. In which type of plants they are seen?
13) Thorns are found in plants such as *Citrus* & *Bougainvillea*.
a) Which part of the stem gets modified as thorn? b) What is its function?
14) In some plants roots modified to perform functions other than absorption and conduction of water. Mention any two root modifications meant for support.
15) Differentiate between an actinomorphic & zygomorphic flower with example.
16) Given below is a type of aestivation seen in pea flowers. a) Identify the aestivation.
b) Describe the arrangements of petals seen in this aestivation.

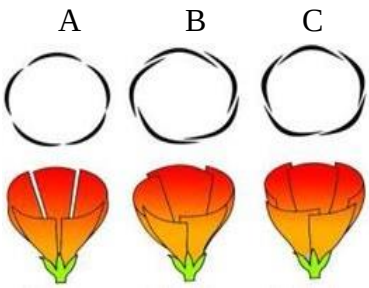
17) What are pneumatophore? Mention a plant in which pneumatophore is seen.
18) The arrangement of flowers on the floral axis is termed as inflorescence.
a) Mention the two types of Inflorescence. b) Identify the type of inflorescence given below.



19) Differentiate between apocarpus & syncarpous gynoecium.

Each question from 20 to 25 carries 3 scores.

20) Given below diagram A, B, & C shows three types of aestivation seen in flowers.
Identify & Comment upon each.



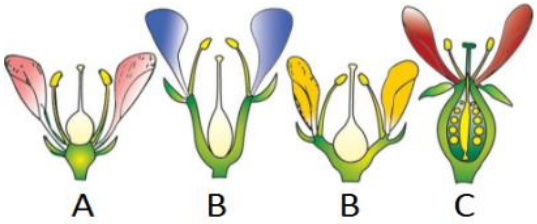
21) Some floral characters are listed below.

Arrange them to their respective families in the table given below

- Flower: bisexual, zygomorphic.
- Perianth: tepals six (3+3).
- Androecium: ten, diadelphous.
- Corolla: petals five, polypetalous, papilionaceous.
- Androecium: stamens six, 3+3, epiphyllous.
- Flower: bisexual; actinomorphic.

Fabaceae	Liliaceae
•	•
•	•
•	•

22) Given below diagrams represents different types of flowers based on the position of calyx, corolla and androecium in respect of the ovary. Identify A, B & C and comment upon each.

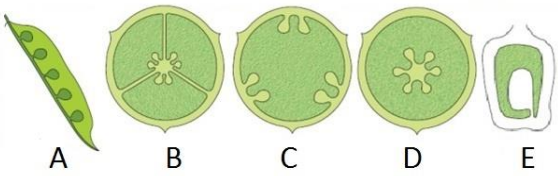


23) Match the following.

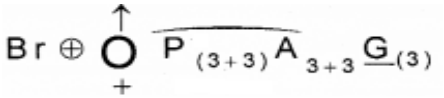
Column A	Column B
1) Epipetalous stamen	a) stamens are free.
2) Monoadelphous	b) stamens attached to the perianth. E.g. Liliaceae.
3) Diadelphous	c) stamens united into more than two bundles. E.g. Citrus.
4) Polyandrous	d) stamens are attached to the petals.
5) Polyadelphous	e) stamens united into two bundles. E.g. Pea.
6) Epiphyllous stamen	f) stamens united into one bundle. Eg. Hibiscus.

24) a) Define placentation.

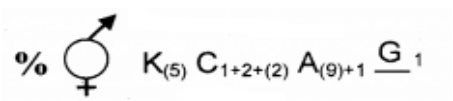
b) Identify the types of placentation in the diagrams A, B, C, D & E given below.



25) Floral formula of the two families A & B are given below.



A



B

a) Identify the family.

b) Describe the features of androecium and gynoecium of the flowers belonging to above families.

ANSWERS

1) Roots that arise from parts of the plant other than the radicle are called adventitious roots.
Eg : Grass, Monstera , Banyan tree.

2) Ebracteate.

3) Gamosepalous - united sepals; Polysepalous – free sepals.

4) Thalamus or Receptacle.

5) Axillary bud.

6) The leaf base of some leguminous plants may become swollen, which is called the pulvinus.

7) Staminode.

8) The mode of arrangement of sepals or petals in floral bud is known as aestivation.

9) Plumule.

10) The stem of *Opuntia* is a fleshy flattened which contain chlorophyll for photosynthesis.

11) They are the organs of storage of food.
They also act as organs of perennation to tide over unfavourable conditions for growth.

12) - In dicot plants, the primary root grows and its lateral root forms secondary & tertiary roots. The primary roots and its branches constitute the tap root system.
-In monocot plants, the primary root is short lived and is replaced by a large number of roots.
These roots originate from the base of the stem and constitute the fibrous root system.

13) a) Axillary buds of stem. b) They protect plants from browsing animals.

14) - Prop roots - roots hanging from the branches of the banyan tree for support.
- Stilt root - roots arising from the lower nodes of the stem of maize and sugarcane for support.

15) Actinomorphic - Flower can be divided into two equal radial halves in any radial plane passing through the centre . Eg: Mustard, Datura, Chilli.
Zygomorphic – Flower can be divided into two similar halves only in one particular vertical plane.
Eg: Pea, Gulmohur, Bean, Cassia.

16) a) Vexillary aestivation. b) In pea flowers, there are five petals, the largest one is the standard petal, which overlaps the two lateral wings petals which in turn overlap the two smallest anterior keel petals.

17) Pneumatophores are respiratory roots seen in plants like Rhizophora growing in swampy areas.
These roots come out of the ground and grow vertically upward to get oxygen for respiration.

18) The two major types of inflorescences are Racemose and Cymose.
In racemose type, the main axis continues to grow, the flowers are borne laterally in an acropetal succession
In cymose, the main axis terminates in a flower, hence is limited growth.
The flowers are borne in a basipetal order b) Cymose.

19) Apocarpous - Gynoecium with more than one carpel and they may be free. Eg : Lotus and Rose.
Syncarpous - Gynoecium with more than one carpel and they may be fused. Eg : Mustard and Tomato.

20) A: Valvate - The margin of sepals or petals just touch one another, without overlapping.
B: Twisted - One margin of the sepals or petal overlaps that of the next one.
C: Imbricate - The margins of sepals or petals overlap one another but not in any particular direction.

21)

Fabaceae	Liliaceae
Flower: bisexual, zygomorphic,	Flower: bisexual; actinomorphic
Corolla: petals five, polypetalous , papilionaceous	Perianth tepal six (3+3)
Androecium: ten, diadelphous	Androecium: stamen six, 3+3, epiphyllous

22) A-Hypogynous flower - Gynoecium occupies the highest position while the other parts are situated below it. The ovary is superior. Eg : Mustard, China rose and Brinjal.
B- Perigynous flower - Gynoecium is situated in the centre and other parts of the flower are located on the rim of the thalamus almost at the same level. The ovary is said to be half inferior. Eg : Plum, Rose.
C - Epigynous flower - Gynoecium occupies the lowest position while the other parts are situated above it. The ovary is inferior. Eg : Guava and Cucumber, and the Ray florets of Sunflower.

23) 1-d, 2-f, 3-e, 4-a, 5-c, 6-b.

24) a) The arrangement of ovules within the ovary is known as placentation.

b) A- Marginal, B- Axile, C- Parietal, D- Free central, E – Basal. 25) a) A- Liliaceae B – Fabaceae.

b) Gynoecium of Fabaceae : Mono carpellary, ovary superior, , unilocular with many ovules in marginal placentation.
Gynoecium of Liliaceae : Tricarpellary, syncarpous, ovary superior, trilocular with many ovules in axile placentation.