MORPHOLOGY OF FLOWERING PLANTS

Que.1. Fill in the blank. **[Marks :(1)]**

A flower that can't be divided into two similar halves by any vertical plane passing through the centre is called ----------.

Ans. Asymmetric / irregular

Que.2. Observe the relationship between the first two terms and fill in the blank

China rose:Alternate phyllotaxy :: Guava:---------- **[Marks :(1)]**

Ans. Opposite

Que.3. Notice the four kinds of aestivation given below. **[Marks :(3)]**

1. Imbricate

2. Vexillary

3.Valvate

4.Twisted

a. Identify the aestivation in the petals of pea plant.

b. Explain that aestivation.

Ans. a) 2/ Vexillary.

b) 5 petals,largest/standard petal overlaps the two lateral/wing petals which in turn overlap the two smallest anterior/keel petals.

Que.4. Observe the figure and identify the placentation. **[Marks :(1)]**

Ans. Parietal.

Que.5. The pattern of arrangement of leaves in the stem is called phyllotaxy. [Marks :(3)]

a. Name the phyllotaxy where a single leaf arises from each node.

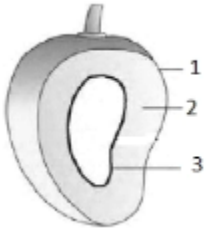
b. Name and explain the phyllotaxy in Alstonia.

Ans. b)Phyllotaxy in Alstonia –Whorled.

More than two leaves arise at a node.

Form a whorl.

Que.6. Observe the figure given below. **[Marks :(2)]**



a. Label the parts 1 ,2, 3.

b. Identify the edible part of mango.

Ans. a)1. Epicarp 2.Mesocarp, 3. Endocarp.

b)Mesocarp

Que.7. Carrot and turnip are root modifications. **[Marks :(3)]**

a) Write the function of such root modifications

b) Explain the root modifications in Rhizophora

(Hint; peculiarities and functions)

Ans. a) Food storage.

b) Roots come out of the ground and grow vertically upwards. Helps to get oxygen for respiration.

Que.8. Choose the correct answer. **[Marks :(1)]**

The distinguishing feature of family Liliaceae is,

a. Vexillary aestivation.

b. Tepals 3+3.

c. Bicarpellary syncarpous flower.

d. Monocarpellary flower.

Ans. b. Tepals 3+3.

Que.9. Certain characteristic features of a family are given below. Name the family.

Vexillary aestivation of calyx and diadelphous condition. **[Marks :(1)]**

Ans. Fabaceae

Que.10. Observe the floral diagrams given below. **[Marks :(3)]**

a) Identify the floral diagram of Solanaceae.

b) Write the peculiarities of its calyx and androecium.

Ans. a) (i)

b) Calyx -Sepals five , gamosepalous, valvate aestivation(any two)

Androecium- Stamens five, epipetalous.

Que.11. The arrangement of veins in the lamina of leaf is called venation. Name the two types of venation. Explain them. [Marks :(3)]

Ans. Reticulate

Parallel

Reticulate - Veinlets form a network.

Parallel - Veins run parallel to each other within the lamina.

Que.12. Two regions of the root are given below. [Marks :(3)]

I) Region of meristematic activity ii) Region of maturation

a) Write the function of the region given as(i)

b) Write the structures seen in the region given as (ii) and write the function of the identified structures.

Ans. a)

i) Cells of this region divide repeatedly.

b)ii) Root hairs

Function - Absorb water and minerals from the soil.

Que.13. Based on the position of ovary flowers are classified into hypogynous ,epigynous and perigynous. [Marks :(3)]

a. Write the position of ovary in these three types of flowers.

b. Give examples for the three types.

Ans. a) Position of ovary.

Hypogynous - Superior.

Perigynous - Half inferior/ half superior.

Epigynous - Inferior.

b) Examples

Hypogynous- China rose/ Brinjal / Mustard. (Any one)

Perigynous - Rose / Peach/ Plum. (Any one)

Epigynous -Gua / Cucumber. (Any one)

Que.14. While observing certain flowers in the classroom, Anu noted the features of a flower as epipetalous and epiphyllous in the Botany diary. What does the two terms indicate. **[Marks :(2)]**

Ans. Epipetalous- Stamens attached to the petals.

Epiphyllous - Stamens attached to the tepals.

Que.15. 2.Match the items of column A with column B **[Marks :(2)]**

A	**B**
a) Bract	**i)Swollen end of the pedicel.**
b) Style	**ii)Cushion like structure that attaches the ovule with ovary**
c)Thalamus	**iii)Reduced leaf found at the apex of the pedicel.**
d) Placenta	**iv)Enlarged basal part of carpel**
	v)Connect s ovary with the stigma

Ans. a) iii ,b) v , c) i , d) ii

Que.16. Observe the modifications of plant parts given below. **[Marks :(2)]**

i)Spine , ii)Pneumatophores

Name the plant part modified in the above structures and write their functions

Ans. Plant part modified

i)Leaf

ii)Root

Functions

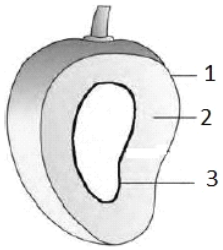
Spine -Defence

Pneumatophore- Helps in breathing.

Que.17. Observe the figure and identify the placentation. **[Marks :(1)]**

Ans. Parietal.

Que.18. Observe the figure given below. **[Marks :(2)]**

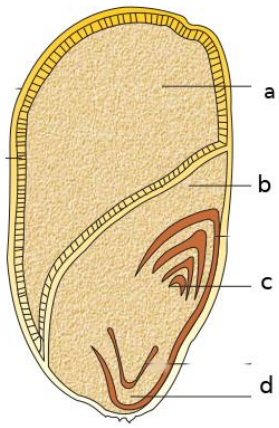


a. Label the parts 1 ,2, 3
b. Identify the edible part of mango

Ans. a) 1. Epicarp 2.Mesocarp, 3. Endocarp.

b) Mesocarp

Que.19. The Figure shows the structure of monocot seed.Label the parts a,b,c,d.Name the protein layer covering the part ' a'. **[Marks :(2)]**



Ans. a) Endosperm

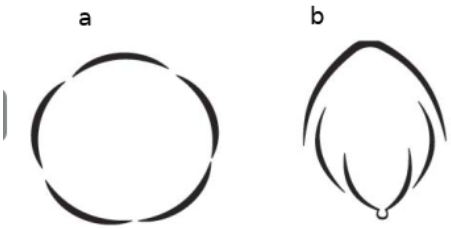
b)Scutellum

c)Plumule

d)Coleorhiza

Aleurone layer

Que.20. Observe the following diagrams of aestivation. **[Marks :(2)]**



i) Identify the aestivation in a and b.

ii)Give one example for each type.

Ans. i) a) Valvate

b) Vexillary

ii) a) Calotropis

b) Pea

Que.21. The main function of the stem is spreading out branches, bearing leaves, flowers and fruits.But in some cases stem is modified for different functions. Write any three modifications with one example each ? **[Marks :(3)]**

Ans. 1 Stem tendrils. e.g.Cucumber, pumpkins, watermelon and grapewine.(Any one)

2.Thorn. eg. Citrus, Bougainvillea.(Any one)

3.Underground stem for storage/ perennation. eg. potato, ginger, turmeric, zaminkand.(Any one)

(Any three stem modifications with examples.)

Que.22. Fill in the blank. **[Marks :(1)]**

Colchicine is obtained from .....

Ans. Colchicum autumnale.

Que.23. Write any four economic importance of liliaceae. **[Marks :(2)]**

Ans. Ornamentals , source of medicine , vegetables and colchicine

Que.24. Write the types of placentation seen in Dianthus and sunflower. **[Marks :(2)]**

Ans. Dianthus- Free central

Sunflower- Basal

Que.25. Fill in the blank. **[Marks :(1)]**

A sterile stamen is called .....

Ans. Staminode.

Que.26. Based on symmetry flowers are classified into three types. [Marks :(3)]

a)Which are they?

b)Write any one example for each.

Ans. 1)Actinomorphic. eg. Mustard, Datura, Chilli(any one)

2)Zygomorphic. eg.Bean,Pea, Gulmohur, Cassia(any one)

3)Asymmetric. eg.Canna

Que.27. Inflorescence is the arrangement of flowers on the floral axis. [Marks :(2)]

a)Name two types of inflorescence.

b)What are the main differences between these two?

Ans. a. Racemose and Cymose.

b. In racemose the main axis continues to grow, the flowers are borne laterally in an acropetal succession.

In cymose type of inflorescence the main axis terminates in a flower, hence is limited in growth.The flowers are borne in a basipetal order.

Que.28. Write the type of phyllotaxy seen in the following plants. [Marks :(2)]

a) China rose. b) Calotropis. c)Mustard. d) Alstonia.

Ans. a) Alternate. b) Opposite. c)Alternate. d) Whorled.

Que.29. Observe the floral diagram and answer the following question. [Marks :(3)]

a.Identify the family.

b.Write two characters of gynoecium and androecium.

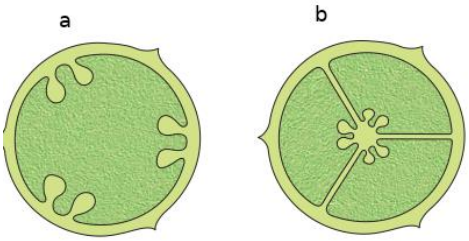
Ans. a) Solanaceae

b) Androecium- Stamens five, epipetalous.

Gynoecium - Bicarpellary, syncarpous, ovary superior , bilocular, placenta swollen with many ovules.(Any two from each)

Que.30. Identify the types of placentation (a) and (b) given below.Give one example for each.

[Marks :(2)]



Ans.

	a) Parietal b) Axile Egs: a)Mustard/Argemone b)China rose/tomato/lemon

Que.31. Differentiate gamosepalous and polysepalous condition.

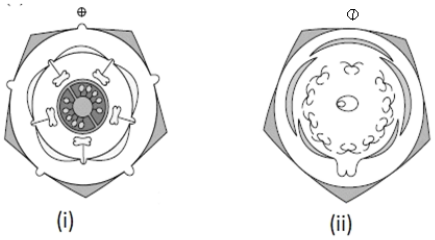
[Marks :(2)]

Ans. Polysepalous- Sepals free.

Gamosepalous-Sepals united

Que.32. Observe the floral diagrams given below.

[Marks :(3)]



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Ans. a) (i)
b) Calyx -Sepals five , gamosepalous, valvate aestivation.

Androecium- Stamens five, epipetalous.