



# BIOLOGY

## BOOKS - NIKITA PUBLICATION

### Morphology of Flowering Plants

#### Example

1. Two of the vegetables we consume are nothing but leaf bases. Which are they?



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2. Opuntia has spines but Carissa has thorns.

What is the difference?



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3. Teacher described Hibiscus as solitary Cyme.

What it means?



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4. Students were on the excursion to a botanical garden. They noted following observation. Will you be able to help them in understanding those conditions?

A wiry outgrowth was seen on a plant arising from in between the leaf and stem.



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5. There was a green plant with flat stem, but no leaves. The entire plant is covered by soft

spines.



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6. Many obliquely roots were given out from the lower nodes, apparently for extra support.



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7. Many plants in the marshy region had upwardly growing roots. They could be better seen during low tide.



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8. A plant had leaves with long leaf apex, which was curling around a support.



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9. A plant was found growing on other plant. Teacher said it is not a parasite. It exhibited two types of roots.



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10. While having lunch onion slices were served to them. Teacher asked which part of the plant are you eating?



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11. Teacher showed them Marigold flower and said it is not on flower. What the teacher meant?



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**12.** Teacher showed them Marigold flower and said it is not on flower. What the teacher meant?



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**13.** Students cut open a papaya fruit and found all the seeds attached to the sides. Teacher inquired about the possible placentation of papaya ovary.



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**14.** Roots obtain oxygen from air in the soil for respiration. In the absence or deficiency of  $O_2$  root growth is restricted or completely stopped. How do the plants growing in marsh lands or swamps obtain their  $O_2$  required for root respiration?



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**15.** Write floral formula for a flower which, is bisexual, actinomorphic, sepals five, twisted



aestivation, petals five, valvate aestivation, stamens six, ovary trilocular, syncarpous, superior, trilobular with axile placentation



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**16.** In *Opuntia* the stem is modified into a flattened green structure to perform the function, of leaves (i.e., photosynthesis). Cite some other examples of modifications of plant parts for the purpose of photosynthesis



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**17.** In swampy areas like the Sunderbans in West Bengal, plants bear special kind of roots called



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**18.** In aquatic plants like Pistia and Eichhornia, leaves and roots are found



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19. Reticulate and parallel venation are characteristic of and respectively



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20. Which parts in ginger and onion are edible?



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21. In epigynous flower, ovary is situated below the.



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22. Add the missing floral organs of the given floral formula of Fabaceae.

$$\oplus K_5 \dots \dots \dots A_a \overline{G}_1$$



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23. Name the body part modified for food storage in the following

Carrot.....





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**24.** Name the body part modified for food storage in the following

Colocasia.....



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**25.** Name the body part modified for food storage in the following

Sweet potato.....



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**26.** Name the body part modified for food storage in the following

Asparagus.....



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**27.** Name the body part modified for food storage in the following

Radish.....



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28. Name the body part modified for food storage in the following

Potato.....



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29. Name the body part modified for food storage in the following

Dahlia.....



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**30.** Name the body part modified for food storage in the following

Turmeric.....



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**31.** Name the body part modified for food storage in the following

Gladiolus.....



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**32.** Name the body part modified for food storage in the following

Ginger.....



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**33.** Name the body part modified for food storage in the following

Portulaca.....



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**34.** Write short note on: Fusiform Root.



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**35.** Writes notes on:

Racemose inflorescence



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**36.** Write short note on Fasciculated tuberous root.





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**37.** Write a short note on Region of Cell Maturation.



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**38.** Write short note on Rhizome.



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**39.** Writes notes on:

Stolon



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**40.** Write short note on leaf venation.



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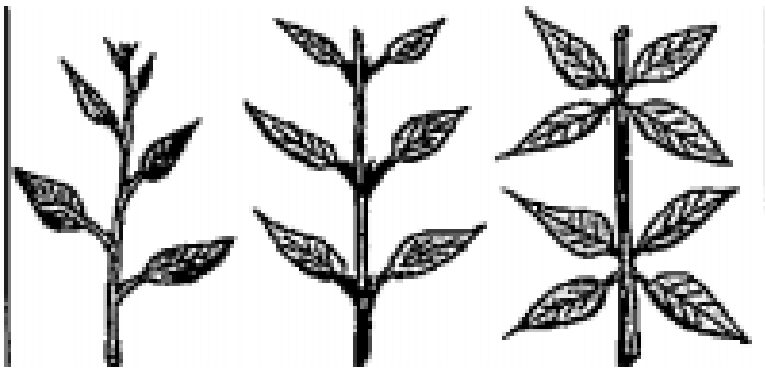
**41.** Writes notes on:

Cymose inflorescence.



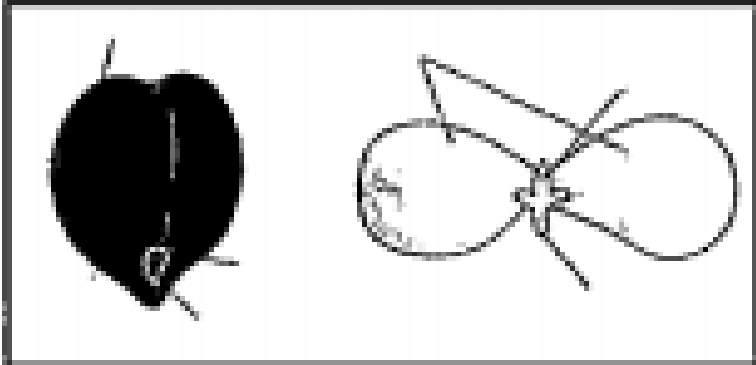
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42. Identify the following figures and write down the types of leaves arrangement.



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**43.** Observe the following figures and label the different parts.



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**44.** Give two examples of roots that develop from different parts of the angiospermic plant other than the radicle.



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**45.** The essential functions of roots are anchorage and absorption of water and minerals in the terrestrial plant. What functions are associated with the roots of aquatic- plants. How are roots of aquatic plants and terrestria plants different?



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**46.** Draw diagrams of a typical monocot and dicot leaves to show their venation pattern.



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**47.** A typical angiosperm flower consists of four floral parts. Give the names of the floral parts and their arrangements sequentially.



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**48.** Reticulate venation is found in dicot leaves while in monocot leaves venation is of parallel type. Biology being a 'Science of exceptions', find out any exception to this generalization.



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**49.** You have heard about several insectivorous plants 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?



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50. Mango and coconut are 'drupe' type of fruits. In mango fleshy mesocarp is edible. What is the edible part of coconut? What does milk of tender coconut represent?



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**51.** How can you differentiate between free central and axile placentation?



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**52.** Tendrils are found in the following plants. Identify whether they are stem tendrils or leaf tendrils.

Cucumber



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**53.** Tendrils are found in the following plants.

Identify whether they are stem tendrils or leaf tendrils.

Peas



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**54.** Tendrils are found in the following plants.

Identify whether they are stem tendrils or leaf tendrils.

Pumpkins





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**55.** Tendrils are found in the following plants. Identify whether they are stem tendrils or leaf tendrils.

Grapevine



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**56.** Tendrils are found in the following plants. Identify whether they are stem tendrils or leaf

tendrils.

Watermelons



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**57.** Why is maize grain usually called as a fruit and not a seed?



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**58.** Tendrils of grapevines are homologous to the tendril of pumpkins but are analogous to

that of pea. Justify the above statement.



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**59.** Rhizome of ginger is like the roots of other plants that grows underground despite this fact ginger is a stem and not a root. Justify.



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**60.** Differentiate between

Bract and Bracteole



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**61. Differentiate between**

Pulvinus and petiole



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**62. Differentiate between**

Pedicle and peduncle



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**63.** Differentiate between

Spike and spadix



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**64.** Differentiate between

Stamens and staminoid



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**65.** Differentiate between

Pollen and pollenium



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**66.** Differentiate between Racemose and Cymose Inflorescence.



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**67.** Differentiate between reticular and parallel venation.



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**68.** Differentiate between Tap root system and adventitious root system.



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**69.** Describe the structure of leaf.



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**70.** What is flower? Give an account of accessory whorls of flower. Flower is highly modified & condensed shoot specially designed for sexual reproduction.



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**71.** What are fruits? Classify fruits & give suitable example.





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**72.** Distinguish between families Fabaceae, Solanaceae, Liliaceae on the basis of gynoecium characteristics (with figures), Also write economic importance of any one of the above family.



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**73.** Describe various stem modifications associated with food storage, climbing and

protection.



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**74.** Stolon, offset and rhizome are differeny forms of stem modifications.How can these modified forms of stem be distinguished from each other?



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**75.** The mode of arrangements of sepals of petals in a floral bud is known as aestivation. Draw the various types of aestivation possible for a typical pentamerous flower.



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**76.** The arrangement of ovules within the ovary is known as placentation. What does the term placenta refer to? Draw various types of

placentations in the flower as seen in T.S. and V.S.



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77. How do you distinguish between hypogeal germination and epigeal germination? What is the role of cotyledon (s) and the endosperm in the germination of seeds?



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**78.** Seeds of some plants germinate immediately after shedding from the plants while in other plants they require a period of rest before germination. The later phenomena is called as dormancy. Give the reasons for seed dormancy and some methods to break it.



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**79.** What is meant by modification of root?

What type of modification of root is found in

the

Banyan tree



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**80.** What is meant by modification of root?

What type of modification of root is found in

the

Turnip



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**81.** What is meant by modification of root?

What type of modification of root is found in the

Mangrove trees



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**82.** Justify the following statements on the basis of external features.

Underground parts of a plant are not always roots





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**83.** Justify the following statements on the basis of external features.

Flower is a modified shoot



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**84.** How is pinnately compound leaf different from palmately compound leaf?



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**85.** Explain with suitable examples the different types of phyllotaxy?



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**86.** Define the following terms:

Aestivation



**Watch Video Solution**

**87.** Define the following terms:

Placentation



**Watch Video Solution**

**88.** Define the following terms:

Actinomorphic



**Watch Video Solution**

**89.** Define the following terms:

Zygomorphic



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**90.** Define the following terms:

Superior ovary



**Watch Video Solution**

**91.** Define the following terms:

Epipetalous Stamen



**Watch Video Solution**

**92.** Differentiate between Racemose and Cymose Inflorescence.



**Watch Video Solution**



**93.** Differentiate between Fibrous and adventitious root system.



**Watch Video Solution**

**94.** Differentiate between Apocarpous and syncarpous ovary.



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**95.** Draw the labelled diagram of the following:

Gram seed.



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**96.** Draw the labelled diagram of the following:

V.S. of maize seed



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**97.** Describe modifications of stem with suitable examples.



**Watch Video Solution**

**98.** Take one flower of family Fabaceae and write its essential description. Also draw their floral diagrams after studying them.



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**99.** List the different types of placentations citing examples.



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**100.** State the parts of a typical flower.



**Watch Video Solution**

**101.** How do the various leaf modifications help plants?



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**102.** State the different types of inflorescence citing examples.



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**103.** Write floral formula for a flower which is bisexual, actinomorphic, sepals five, twisted aestivation, petals five, valvate aestivation,

stamens six, ovary trilocular, syncarpous, superior, trilobular with axile placentation



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**104.** Describe the arrangement of floral members in relation to their insertion on thalamus?



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**Exercise**

1. Which one of the following will grow better in moist and shady region?



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2. A particular plant had a pair of leaves at each node arranged in one plane. What is the arrangement called?



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3. In a particular flower the insertion of floral whorls was in such a manner, so the ovary was below other three whorls, but its stigma was taller than other three whorls. What will you call ovary such flower?



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4. Beet and Arum both store food for perennation. Are the examples for two different types?







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5. Roots are generally



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6. Root cap is present at the tip of root for



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7. In hydrophytes like Eichornia, Pistia root caps are



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8. Which of the following is wrong about fibrous root system



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9. Which of the following is incorrect about tap root



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10. The pneumatophores have numerous air spaces and small pores in periphery for exchange of gases are lenticels. Why pneumatophores are called as breathing roots



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**11.** In sweet potato tuberous roots are developed for... Fasciculated tuberous roots are developed for



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**12.** Fasciculated tuberous adventitious roots are common in



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**13.** In large trees like banyan some additional roots are developed for additional support are



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**14.** Climbing roots produce viscous substance for attachment are developed for support & Climbing roots are common in



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**15.** The orchid like Vanda and Dendrobium grows on branches of large trees and produces



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**16.** Which of the following is true?



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**17.** The swelling of sweet potato is called as



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**18.** Which of the following is true about epiphytic roots



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**19.** Match the items in Column-I with Column-II and choose the correct alternative

**Column - I**

- A) Tubercular storage
- B) Pneumatophores
- C) Haustoria
- D) Prop-roots
- E) Assimilatory roots

**Column - II**

- 1) Tinosporaroots
- 2) Heritiera
- 3) Asparagus
- 4) Viscum
- 5) Screwpine



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20. Which of the following is true about underground stem?



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**21.** The dorsoventral, underground, horizontal stem is called as rhizome it has...



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**22.** Tubers differ from rhizome because



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**23.** The simple fruits are



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24. Fruits develops from polycarpellary & apocarpus ovary & more than one fruit develop from single flower.



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25. The potato and sweet potato shows similarity in



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**26.** Stolons are



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**27.** Corm differs from rhizome in having



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**28.** In dicot like Mango, banyan show type of  
venation



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**29.** Aleurone layer is present in

A. bacterial biofilm

B. virus infected plant cell

C. pathogenic fungi

D. seed

**Answer:**



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### 30. Statement

In sweet pea (*Pisum sativum*) terminal leaflets are tendrillar



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31. Rearrange the following zones as seen in the root in vertical section and choose the correct option (A) Root hair zone (B) Zone of meristems (C) Root cap zone (D) Zone of maturation (E) Zone of elongation





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**32.** In an inflorescence where flowers are borne laterally in an acropetal succession, the position of the youngest floral bud shall be



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**33.** The mature seed of plants such as gram and peas, possess no endosperm, because



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**34.** Roots developed from parts of the plant other than radicle are called



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**35.** Venation is a term used to describe the pattern of arrangement of



**Watch Video Solution**

**36.** Endosperm a product of double fertilization in angiosperm is absent in the seeds of



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**37.** Many pulses of daily use belong to one the families below



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**38.** The placenta is attached to the developing seed near the



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**39.** Which of the plants is used to extract the blue dye?



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## 40. Match the following:

- | Group A                 | Group B                   |
|-------------------------|---------------------------|
| A. Aleurone layer       | i. without fertilization  |
| B. Parthenocarpic fruit | ii. Nutrition             |
| C. Ovule                | iii. Double fertilization |
| D. Endosperm            | iv. Seed                  |



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