



BIOLOGY

BOOKS - SRIJAN BIOLOGY (ENGLISH)

SEXUAL REPRODUCTION IN FLOWERING PLANTS

Illustrative Questions

1. Why is an embryo sac diploid in agamospermy?



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2. Explain the significance of sexual reproduction in the life cycle of a plant.



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3. How is reproduction in plants accomplished?



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4. What is alternation of generations in angiosperms?



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5. Define: Siphonogamy



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6. What is pollen-pistil interaction in flowering plants?





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7. Give correct term for the following statements:

In a bisexual flower, if anthers mature first



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8. Give correct term for the following statements:

Flowers which are pollinated by insects



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9. Give correct term for the following statement:

The cells present at the micropylar end of embryo sac



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10. Give correct term for the following statements:

The two nuclei present in the central cell of embryo sac,



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11. Give correct term for the following statements:

Maturation of microspores or pollen grains in anthers



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12. Give correct term for the following statements:

Inability of a functional male and female gametes to achieve fertilisation on being brought close together



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13. Give correct term for the following statements:

When pollen tube pierces through

integuments of the embryo sac to reach the ovule.



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14. Give correct term for the following statements:

Flowers pollinated by bat.



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15. What is parthenocarpy?



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16. Give some examples of parthenocarpic fruits.



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17. Why parthenocarpic fruits are seed less?



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18. Why are some plants having bisexual flowers show self incompatibility?



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19. How can parthenocarpy be induced?



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20. What is double fertilisation?



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21. What is the triple fusion?



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22. What is the significance of double fertilisation?



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23. What are chasmogamous flowers? Can cross-pollination occur in cleistogamous flowers? Give reasons for your answer.



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24. What is bagging technique? How is it useful in a plant breeding experiment?



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25. Why do you think the zygote is dormant for sometime in a fertilised ovule?



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26. What is meant by emasculation? When and why does a plant breeder employ this technique?



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27. If one can induce parthenocarpy through the application of growth substances, which fruits would you select to induce parthenocarpy and why?



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28. Explain the role of tapetum in the formation of pollen grain wall.



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29. How is pollination carried out in water plants?



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30. What is the function of the two male gametes produced by each pollen grain in angiosperms?



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31. The generative cell of a two-celled pollen divides in the pollen tube but not in a three celled. Give reasons.



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32. Self-pollinating flowers have less chances of production of new species and varieties. Why?



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33. Flowers in *Salvia* show stamens with lever mechanism. How?



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34. In cleistogamous flowers, self-pollination takes place. Why?



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35. Process of double fertilisation is advantageous to angiospermic plants. How?



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36. Self-incompatibility in plants is an adaptation which promotes cross pollination. How?



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37. Why are wind and water pollinated flowers not colourful and why do they not produce nectar?



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38. How would you explain seeds formed in papaya in the absence of male plant in the vicinity of a female plant?



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39. What is the significance of pollen-stigma interaction?



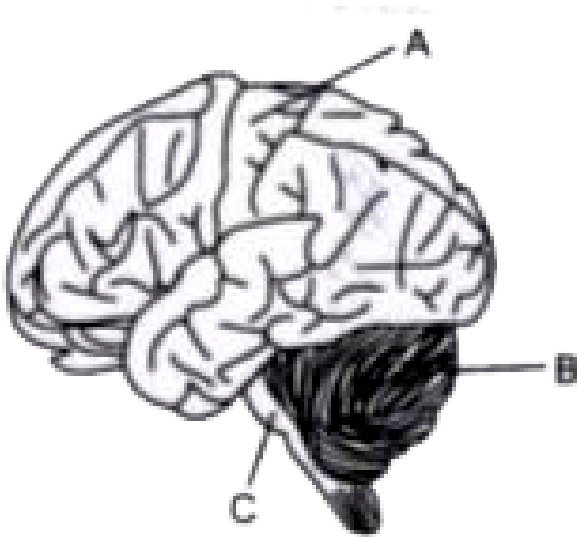
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40. Young fruits are generally green in colour and bitter in taste. What is its significance ?



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41. The diagram shows a section of the human brain. Answer the question which follow:



Give the main function of each of the parts A, B and C.



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42. The given diagram shows the structure of a cereal grain in section.



(a) Name the seed and label the parts A, B, C, D and E.

(b) State one function for each of the parts labelled A, B and C.

(c) Give reason why is it called a grain?



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43. How will you explain that protandrous flowers are more common in nature?



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44. In most flowers there is an overlapping period when both anthers and stigma are mature in dichogamous flowers. Why?



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45. Why is cross pollination more widespread than self pollination even though it is more chance based and needs more plant energy expenditure?



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46. What is the function of a single cotyledon in monocotyledonous seeds?



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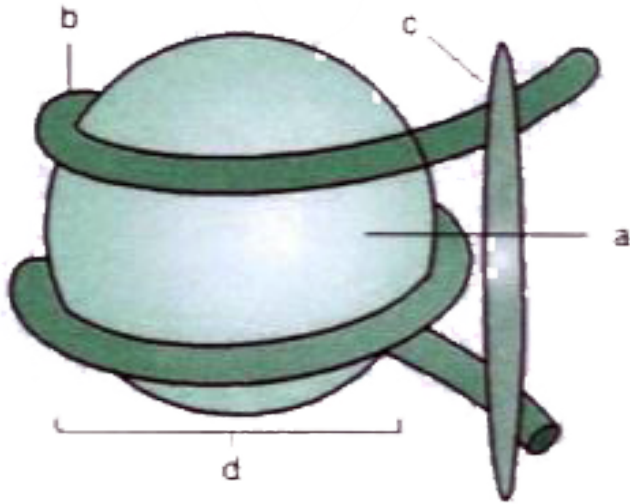
47. Biologist made aqueous extracts of stigmas of two species A and B and placed the pollen grains from each in both extracts. Some of the pollen germinated. A germinated pollen is shown in the figure.



- (a) Label the two nuclei shown in figure.
- (b) Explain whether you consider this pollen to be wind-or insect-distributed.



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48.

Name the parts a, b, c and d.



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49. The flowers of the primrose (*Primula vulgaris*), are polymorphic. The two most common forms occur on separate plants and

are termed as 'pin-eyed' (long style and lowered anthers) and 'thrum-eyed' (short style and highly placed anthers).



In most localities, pin-eyed and thrum-eyed plants are found in equal proportions. The flowers are pollinated by insects, such as bees, which have a long proboscis or tongue. The bee pushes its head into the mouth of the corolla tube and the proboscis is extended to collect the nectar at the base of the flower.

Explain how the polymorphism is likely to

increase the variability of the offspring of primrose plants.



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50. An enlarged view of one microsporangium of a mature anther is given:

(a) Name A, B and C.

(b) Mention the characteristics and functions of the cells forming wall layer C.



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51. What are honey guides?



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52. What attracts a bee to the flowers? Which sense organs does it use?



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53. Differentiate the following:

Fertilisation and double fertilisation



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54. Differentiate the following:

Apomixis and polyembryony



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55. Differentiate the following:

Parthenocarpy and polyembryony



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Practice Questions Very Short Answer Type Questions

1. Give the term used for pollination by bat and give one example of bat-pollinated flower.



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2. If the diploid number of chromosomes in an angiospermic plant is 18, what number would you expect in the endosperm and embryo of that plant?



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3. Name the most resistant organic material known so far in nature and present in pollen grains.



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4. What do you mean by hydrophily?



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5. Give three examples of false fruit.



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6. What is coleorhiza?



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7. What is scutellum?



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8. What are parthenocarpic fruits?



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9. Mention any two characteristics of pollen grains of plants such as maize and cannabis.





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10. Name the protective substance present in the pollen envelope to tide over adverse condition.



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11. Why are pollen grains produced in enormous quantity in maize?



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12. Define anemophily.



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13. How does endosperm in angiosperm become triploid?



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14. What term is used to describe the covering of pollen grains that has characteristic

sculpturing?



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15. Define geitonogamy.



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16. Give the term for flowers pollinated by honeybees and butterflies. List any two specific features of such flowers.



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17. Write the function of germ pores.



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18. What do you technically call the water that you drink and the kernel you eat in a tender coconut?



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19. A bilobed, dithecous anther has 100 microspore mother cells per microsporangium. How many male gametophytes can this anther produce?



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20. An anther with malfunctioning tapetum often fails to produce viable male gametophytes. Why?



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21. Write the function of tapetum in anther.



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22. Write the mode of reproduction that ensures the creation of new variants.



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23. What is the fate of egg cell and polar nuclei after fertilisation?



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24. Give scientific terms for the following:

Cushion-like structure inside the ovary to which ovules are attached.



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25. Give scientific terms for the following:

A few-celled structure developing from the zygote in early stages of embryonic development



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26. Give scientific terms for the following:

A food-laden tissue differentiated inside the embryo sac after double fertilisation from the primary endosperm nucleus.





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27. Give scientific terms for the following:

A layer towards the broader side of the endosperm in maize grain, rich in proteins.



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28. Give scientific terms for the following:

The fusion product of an egg and a male gamete.



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29. Give scientific terms for the following:

Seeds containing fleshy cotyledons.



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30. Give scientific terms for the following:

Two major wall layers of pollen grains collectively known as



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31. Give scientific terms for the following:

The female reproductive organ of a flower (megasporophyll) bearing ovules.



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32. Give scientific terms for the following:

Plants having male and female sex organs or flowers on different plants.



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33. Give scientific terms for the following:

A state of reduced physiological activity that occurs in seeds, buds, etc.



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34. Give scientific terms for the following:

A young sporophytic plant while still retained in the gametophyte or in the seed.



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35. Give scientific terms for the following:

The nutritive tissue formed within the embryo sac of seed plants.



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36. Give scientific terms for the following:

The process of fusion of a male gamete (sperm or antherozoid) with an egg resulting in the formation of zygote.



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37. Give scientific terms for the following:

A ripened ovary.



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38. Give scientific terms for the following:

A haploid reproductive or sex cell taking part in sexual reproduction forming the diploid zygote.



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39. Give scientific terms for the following:

Flower having both male and female reproductive structures.



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40. Give scientific terms for the following:

Plants having male and female flowers or sex organs on the same plant.



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41. Give scientific terms for the following:

Process of transfer of pollen from the anther to the stigma of the same flower or a different flower of the same species.



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42. Give scientific terms for the following:

A mature ovule containing an embryo within it.



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43. Give scientific terms for the following:

A unicellular or multicellular asexual reproductive body produced by a haploid or diploid generation.



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44. Give scientific terms for the following:

A spore-bearing leaf.



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Practice Questions Short Answer Type Questions

1. Give one example of ornithophilous flowers.

Mention its two characters.



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2. Name the pollinating agents of flowers like maize and wheat. Give any two favourable features of such a flower.



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3. Name the pollinating agents of flowers like Salvia, Nasturtium and Sunflower. Give two favourable features of such a flower for pollination.



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4. What is the significance of double fertilisation?



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5. Write the functions of a flower.



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6. Why is endosperm in angiospermic ovule considered as more efficient?



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7. List the advantages of pollination to angiosperms.





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8. What is the fate of haploid megaspores formed by the megaspore mother cell in an angiospermic plant?



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9. Why is the process of fertilisation in a flowering plant referred to as double fertilisation? Explain.



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10. What will be the ploidy of cells of nucellus, MMC, functional megaspore and female gametophyte?



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11. Define Monocarpate



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12. Define Tricolpate



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13. Define Tigellum



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14. Mention the reasons for difference in ploidy of zygote and primary endosperm nucleus in an angiosperm.



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15. If you squeeze a seed of orange you might observe many embryos of different sizes. How is it possible? Explain.



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16. Give special characters of wind-pollinated flowers.



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17. Explain the sequence of events in pollen pistil interaction.



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18. Name all the haploid cells present in an unfertilised mature embryo-sac of a flowering plant. Write the total number of cells in it.



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1. Differentiate between geitonogamy and allogamy.



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2. Define: Siphonogamy



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3. Define: Endosperm



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4. Define: Double fertilisation



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5. Describe the structure of female gametophyte of an angiosperm.



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6. Write a note on the role of pollination in the growth and development in an angiosperm.



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7. Draw a well-labelled diagram of L.S of a pistil of a flower showing the passage of growing of pollen tube up its destination



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8. Draw a labelled diagram of the longitudinal section of the maize grain to show the structure of mature embryo.



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9. Describe double fertilisation and its significance.



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10. What features of flowers facilitate pollination by birds?



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11. Trace the development of microsporophyte in the anther to a mature pollen grain.



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12. Trace the development of a megagametophyte in the ovary to mature ovule.



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13. How does the floral pattern on Mediterranean orchid *Ophrys* guarantee cross pollination ?



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14. Why is tender coconut considered a healthy source of nutrition?



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15. How do seed bearing plants tide over dry and hot weather conditions?



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Practice Questions Long Answer Type Questions

1. Describe longitudinal section of a pistil showing pollen germination. Explain the events in the embryo sac during the process of fertilisation. Which resulting stages give rise to the embryo and the endosperm respectively?



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2. Describe a labelled sketch of maize grain. Describe its structure.



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3. Describe different types of pollination.



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4. Describe the development of female gametophyte in angiosperms.



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5. (a) Describe a labelled diagram of longitudinal section of an anatropous ovule.

(b) Which cell of the ovule gets transformed into megaspore mother cell?



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6. What is double fertilisation? Describe the process giving its significance. Add a note on post-fertilisation changes leading to the formation of seed.





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7. (a) Draw a diagram of a mature embryo sac of an angiosperm and label the following parts in it :

(i) Filiform apparatus , (ii) Synergids , (iii) Central cell , (iv) Egg cell , (v) Polar nuclei , (vi) Antipodals

(b) Write the fate of egg cell and polar nuclei after fertilization



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8. Write the mode of pollination in Vallisneria and water lily. Explain the mechanism of pollination in Vallisneria.



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9. How are pea seeds different from castor seeds with respect to endosperm?



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Previous Year S Board Paper Questions Very Short Answer Type Questions

1. What is geitonogamy?



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2. Mention one significant difference between mesogamy and porogamy.



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3. Mention one significant difference between autogamy and geitonogamy.



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4. Explain briefly the pollinium.



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5. Mention one significant difference between dormancy and quiescence.



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6. Define multiple fruits.



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7. Give one significant difference between aggregate fruit and multiple fruit.



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8. State the best known contribution of Nawaschin.



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9. Define apomixis.



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10. Give scientific term for the entry of pollen tube into an ovule through integuments.



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11. Name the scientist who discovered double fertilisation.



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12. Define polyembryony.



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13. What is emasculation?



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14. A particle is moving along x-direction with a constant acceleration a . The particle starts from $x = x_0$ position with initial velocity u . We can define the position of the particle with time by the relation

$$x = x_0 + ut + \frac{1}{2}at^2$$

plot the position of the particle in relation

with time is following situations

(i) If initial position of the particle is on negativ x-axis, initial velocity is positive and acceleration is negative.

(ii) If initial position is positive, initial velocity is negative and acceleration is positive.



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15. Give a reason for each of the following :

Pollen grains of wind pollinated flowers are produced in large quantities.



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16. Give a reason

Bagging is essential in artificial hybridisation.



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17. What is the significance of dispersal of seeds? Give any two points.



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Previous Year S Board Paper Questions Short Answer Type I Questions

1. Give any four adaptations of anemophilous flowers.



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2. Explain epigeal germination.



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3. Write four advantages of cross-pollination over self-pollination.



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4. What is the triple fusion?



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5. What is the photoperiodism?



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6. Define: Double fertilisation



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7. Mention two advantages of cross-pollination.



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8. State four features of flowers pollinated by insects.



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Previous Year S Board Paper Questions Short Answer Type II Questions

1. Draw a neat and labelled diagram of a mature anatropous ovule before fertilisation.



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2. Draw a labelled diagram of the mature embryo sac of angiosperms.



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3. Draw a labelled diagram of the T.S. of a mature anther.



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4. Explain the different types of endosperms in angiosperms.



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Previous Year S Board Paper Questions Long Answer Type Questions

1. Draw a labelled diagram of the VS of an ovule just before fertilisation.



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2. Describe the formation of an embryo from a fertilised egg in angiosperms.



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3. Describe the events that take place between pollination and fertilisation in plants.



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4. Explain the development of an anther and the formation of microspores in angiosperms.



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5. Explain the development of the different types of endosperms in angiosperms.



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6. Explain the sequence of events between pollination and fertilisation in plants.



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7. Describe the development of endosperm after double fertilization in an angiosperm. Why does endosperm development precedes that of zygote ?



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8. With the help of diagrams, name and describe the different types of placentation seen in angiosperms.



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9. State four features of flowers pollinated by insects.



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10. State four features of flowers pollinated by insects.



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11. Draw a neat labelled diagram of L.S. of anatropous ovule.



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Review Questions

1. Give one significant difference between each of the following:

(i) Apocarpous ovary and Syncarpous ovary

(ii) Anemophilous and Entomophilous flowers



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**Review Questions Questions Statements Has
Four Suggested Answers Rewrite The Correct
Answer In Each Case**

1. The outermost layer of maize endosperm is known as

A. Perisperm

B. Aleurone

C. Tapetum

D. Endothecium

Answer:



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2. Edible part in mango is

A. Endocarp

B. Receptacle

C. Epicarp

D. Mesocarp

Answer:



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3. The process whereby the male gametes are brought to the egg by a pollen tube is called

- A. Syngamy
- B. Porogamy
- C. Siphonogamy
- D. Chalazogamy

Answer:



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4. Which of the following is a true nut?

A. Cork

B. Wood fibre

C. Pollen exine

D. Leaf cuticle

Answer:



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5. Mention one significant function of the following:

(i) Embryo sac

(ii) Synergids



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6. State the best known contribution of:

(i) Nawaschin



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7. Expand the following:

(i) IAA (ii) MMC



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8. What is double fertilisation?



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9. What are the distinguishing features of insect-pollinated flowers?





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10. Describe the formation of mature female gametophyte within an ovule in angiosperms.



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**Competition Corner Objective Type Questions
Multiple Choice Questions**

1. Double fertilisation involves

- A. Fertilisation of egg by two gametes
- B. Fertilisation of two eggs in the same embryo sac by two sperms brought by one pollen tube
- C. Fertilisation of egg and central cell by two sperms brought by different pollen tubes
- D. Fertilisation of egg and central cell by two sperms brought by same pollen

Answer: D



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2. In some plants, anthers and stigma grow and mature at the same time. This phenomenon is called

A. Homogamy

B. Syngamy

C. Allogamy

D. Fusion

Answer: A



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3. Plants of which one of the following groups of genera are pollinated by same agency.

A. Triticum, Cocos, Mangifera

B. Ficus, Kigelia, Casuariana

C. Salvia, Morus, Euphorbia

D. Bombax, Butea, Bauhinia

Answer: D



4. Plants of which one of the following groups of genera are pollinated by same agency?

A. Triticum, Mussanda, Zea mays

B. Kadamb, Cannabis

C. Salvia, Calotropis, Rafflesia

D. Salvia, Pinus, Ophrys

Answer: C



5. In angiosperms, central cell of embryo sac, prior to entry of pollen tube contains

- A. Two haploid polar nuclei
- B. One diploid secondary nucleus
- C. A single haploid nucleus
- D. One diploid and one haploid nucleus

Answer: B



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6. In nature, cleistogamous flowers are

- A. Wind-pollinated
- B. Bird-pollinated
- C. Self-pollinated
- D. Insect-pollinated

Answer: C



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7. Pineapple (anasas) fruit develops from

A. A unilocular polycarpellary flower

B. A multipistillate syncarpous flower

C. A cluster of compactly borne flowers on
a common axis

D. A multilocular monocarpellary flower

Answer: C



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8. Larger nucleus in a pollen grain is

A. Tube nucleus

B. Sperm nucleus

C. Generative nucleus

D. None of these

Answer: A



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9. Which one of the following represents an ovule where the embryo sac becomes horseshoe-shaped and the funiculus and micropyle are close to each other?

- A. Amphitropous
- B. Circinotropous
- C. Atropous
- D. Anatropous

Answer: A



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10. Which of the following represents the edible part of fruit of litchi?

- A. Pericarp
- B. Mesocarp
- C. Juicy aril
- D. Endocarp

Answer: C



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11. Double fertilisation involves

- A. Syngamy + triple fusion
- B. Double fertilisation
- C. Development of antipodal cells
- D. None of the above

Answer: A



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12. Male gametes in angiosperms are formed by the division of

A. Microspore mother cell

B. Microspore

C. Generative cell

D. Vegetative cell

Answer: C



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13. Double fertilisation (or triple fusion) leading to initiation of endosperm in angiosperms, requires

A. Fusion of 4 or more polar nuclei and the second male gamete only

B. Fusion of 2 polar nuclei and second male gamete only

C. Fusion of one polar nucleus and second male gamete only

D. All these types of fusion in different types of angiosperms

Answer: B



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14. Eight-nucleate embryo sacs are

- A. Always bisporic
- B. Always tetrasporic
- C. Always monosporic

D. Sometimes monosporic, sometimes bisporic and sometimes tetrasporica

Answer: D



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15. Triploid tissue in angiosperm is

A. Nucellus

B. Endosperm

C. Endothecium

D. Tapetum

Answer: B



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16. Tapetal cells are characterised by

A. Mitotic division

B. Meiotic division

C. Endomitosis

D. Endomitosis as well as endopolyploidy

Answer: D



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17. Anemophily type of pollination is found in

A. Salvia

B. Bottle brush

C. Vallisneria

D. Coconut

Answer: D



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18. The outermost layer of maize endosperm is known as

A. Perisperm

B. Aleurone

C. Tapetum

D. Endothecium

Answer: B



19. Edible part in mango is

A. Endocarp

B. Receptacle

C. Epicarp

D. Mesocarpa

Answer: D



20. Pollen tube enters the embryo sac usually

- A. Egg cell
- B. Central cell
- C. Persistent synergid
- D. Degenerated synergid

Answer: D



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21. Which one of the following is surrounded by a callose wall ?

A. Male gamete

B. Egg

C. Pollen grain

D. Microspore mother cell

Answer: D



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22. The endosperm in angiosperms develops from

A. Zygote

B. Secondary nucleus

C. Chalazal polar nucleus

D. Micropylar polar nucleus

Answer: B



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23. The fertilisation in which male gametes are carried through pollen tube is known as

- A. Syngamy
- B. Porogamy
- C. Siphonogamy
- D. Chalazogamy

Answer: C



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24. Which one of the following is resistant to enzyme action?

A. Cork

B. Wood fibre

C. Pollen exine

D. Leaf cuticle

Answer: C



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25. Which one of the following pairs of plant structures has haploid number of chromosomes?

A. Megaspore mother cells and antipodal cells

B. Egg cell and antipodal cells

C. Nucellus and antipodal cells

D. Egg nucleus and secondary nucleus

Answer: B





26. What does the filiform apparatus do at the entrance into ovule?

A. It helps in the entry of pollen tube into a synergid

B. It prevents entry of more than one pollen tube into the embryo sac

C. It brings about opening of the pollen tube

D. It guides pollen tube from a synergid to
egg

Answer: A



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27. Unisexuality of flowers prevents

- A. Autogamy, but not geitonogamy
- B. Both geitonogamy and xenogamy
- C. Geitonogamy, but not xenogamy

D. Autogamy and geitonogamy

Answer: A



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28. The plant part which consists of two generations one within the other, is

A. Germinated pollen grain

B. Embryo

C. Unfertilised ovule

D. Seed

Answer: B



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29. In some organisms, karyokinesis is not followed by cytokinesis as a result of which, multinucleate condition arises leading to the formation of syncytium. The perfect example for this is

- A. Appearance of a furrow in cell membrane
- B. Liquid endosperm in coconut
- C. Sexual reproduction
- D. Fertilisation

Answer: B



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30. Nucellar polyembryony occurs in

A. Corchorus

B. Citrus

C. Carthamus

D. Zea mays

Answer: B



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31. Male gametophyte of angiosperms is reduced to

A. One cell

B. Two cells

C. Three cells

D. Four cells

Answer: C



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32. One of the most resistant biological material present in the exine of pollen grain is

A. Lignin

B. Hemicellulose

C. Sporopollenin

D. Lignocellulose

Answer: C



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33. Ubisch bodies are secreted by

A. Tapetum

B. Exine

C. Microspore mother cells

D. Endothecium

Answer: A



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34. Apomictic embryos in Citrus arise from

A. Synergids

B. Maternal sporophytic tissue in ovule

C. Antipodal cells

D. Diploid egg

Answer: B



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35. Transfer of pollen grain from anther to stigma of another flower of the same plant is called as

A. Xenogamy

B. Geitonogamy

C. Karyogamy

D. Autogamy

Answer: B



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36. Wind pollinated flowers are

A. Small, brightly coloured, producing large
number of pollen grains

B. Small, producing large number of dry
pollen grains

C. Large producing abundant nectar and
pollen

D. Small, producing nectar and dry pollen

Answer: B



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37. Transfer of pollen grain from anther to stigma of another flower of the same plant is called as

A. Geitonogamy

B. Autogamy

C. Allogamy

D. Cleistogamy

Answer: A



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38. Exine of pollen grain is made up of

A. Pectocellulose

B. Lignocellulose

C. Sporopollenin

D. Pollen kit

Answer: C



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39. Filiform apparatus is characteristic feature of

A. Suspensor

B. Egg

C. Synergid

D. Zygote

Answer: C



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40. Nucellar polembryony is reported in species of

A. Citrus

B. Gossypium

C. Triticum

D. Brassica

Answer: A



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41. In which one of the following pollination is autogamous?

A. Geitonogamy

B. Xenogamy

C. Chasmogamy

D. Cleistogamy

Answer: D



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42. Wind pollination is common in

A. Legumes

B. Lilies

C. Grasses

D. Orchids

Answer: C



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43. The hilum is a scar on the

- A. Seed, where funicle was attached
- B. Fruit, where it was attached to pedicel
- C. Fruit, where style was present
- D. Seed, where micropyle was present

Answer: A



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44. Which one of the following may require pollinators but is genetically similar to autogamy

A. Geitonogamy

B. Xenogamy

C. Apogamy

D. Cleistogamy

Answer: A



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45. Which of the following are the important floral rewards to the animal pollinators ?

A. Colour and large size of flower

B. Nectar and pollen grains

C. Floral fragrance and calcium crystals

D. Protein pellicle and stigmatic exudates

Answer: B



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46. Transmission tissue is characteristic feature of

A. Hollow style

B. Solid style a

C. Dry stigma

D. Wet stigma

Answer: B



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47. Which one of the following statements is not true

A. Pollen grains are rich in nutrients and they are used in the form of tablets and syrups

B. Pollen grains of some plants cause severe allergies and bronchial affections in some people

C. The flowers pollinated by flies and bats secrete foul odour to attract them

D. Honey is made by bees by digesting pollen collected from flowers

Answer: D



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48. Which one of the following statements is not true

A. Pollen grains of many species cause severe allergies

B. Stored pollen in liquid nitrogen can be used in the crop breeding programmes

C. Tapetum helps in the dehiscence of anther

D. Exine of pollen grains is made up of sporopollenin

Answer: C



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49. Seed formation without fertilization in flowering plants involves the process of

A. Somatic hybridisation

B. Apomixis

C. Sporulation

D. Budding

Answer: B



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50. Which of the following statements is not correct?

A. Pollen germination and pollen tube growth are regulated by chemical components of pollen interacting with those of the pistil.

B. Some reptiles have also been reported as pollinators in some plant species.

C. Pollen grains of many species can germinate on the stigma of a flower, but only one pollen tube of the same species grows into the style.

D. Insects that consume pollen or nectar without bringing about pollination are called pollen/nectar robbers.

Answer: C



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**Competition Corner Objective Type Questions
Assertion And Reason Type Questions For Aiiims
Aspirants**

1. Assertion: Endosperm of angiosperms is generally triploid ($3n$).

Reason: It develops from primary endosperm nucleus formed by the fusion of haploid male gamete and diploid secondary nucleus.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct

explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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2. [A] : Dispersal of fruits in Xanthium takes place by wind and water.

[R] : Fruits are light and floating.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: D



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3. Assertion: Fruits are formed only in angiosperms.

Reason: Fruits develop from ovaries which are found only in angiosperms.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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4. Assertion: Seed plants are highly evolved.

Reason: Seeds are found in gymnosperm and angiosperms.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B



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5. [A] : In Apomixis , plants of new genetic sequence are produced .

[R] : In Apomixis , two individuals of same genetic sequence meet .

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: D



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6. Assertion: Ovule is ategmic in Santalum.

Reason: Ovule without integument is called ategmic.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not

the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B



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7. Assertion: Dichogamy refers to maturation of male and female sex organs at different times.

Reason: This is a safeguard against crosspollination.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: C



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8. Assertion: Some fruits are seedless or contain empty or nonviable seeds.

Reason: They are produced without fertilisation.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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9. Assertion: The fruits of groundnut are not nuts but underground pods.

Reason: The pods will not develop until the fertilised ovary is pushed under the soil.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B



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10. Assertion: Entomophilous plants produce less pollen when compared to anemophilous plants.

Reason: The wastage of pollen is reduced to the minimum in entomophilous plants because of directional pollination.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B



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11. [A] : The time involved between pollination and fertilization varies from species to species

.

[R] : All the pollen that reach the stigma succeed in affecting fertilization .

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct

explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: C



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12. Assertion: Cross-pollination results in healthy and stronger

offspring.

Reason: Due to phenomenon of hybrid vigour.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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13. Assertion: Red colour of flowers attracts butterflies and wasps, but not bees.

Reason: Bees are not sensitive to red colour.

A. If both Assertion and Reason are true
and the Reason is the correct

explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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14. Assertion: A flower is modified shoot.

Reason: All the floral parts are borne on the receptacle(or thalamus).

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B



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15. Assertion: Continued self-pollination generation after generation results in pure line formation.

Reason: By continued self-pollination, plant

becomes pure or homozygous for its characters.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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16. Assertion: Insects visit flowers to gather honey.

Reason: Attraction of flowers prevents the insects from damaging other parts.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: C



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Multiple Choice Questions

1. Filiform apparatus in the embryo sac of an angiosperm is present at the micropylar tip of:

- A. Central cell
- B. Egg cell
- C. Synergids
- D. Antipodals

Answer: C



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2. A dicotyledonous plant bears flowers but never produces fruits and seeds. The most probable cause for the above situation is:

A. Plant is dioecious and bears only pistillate flowers

B. Plant is dioecious and bears both pistillate and staminate flowers

C. Plant is monoecious

D. Plant is dioecious and bears only
staminate flowers.

Answer: D



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3. Embryo sac occurs in-

A. embryo

B. axis part of embryo

C. ovule

D. stamen

Answer: C



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4. Fertilisation involving carrying of male gametes by pollen tube is -

A. porogamy

B. siphonogamy

C. chalazogamy

D. syngonogamy

Answer: B



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5. One of the most resistant biological material is -

A. lignin

B. cutin

C. sporopollenin

D. cellulose

Answer: C



View Text Solution

6. Fragrant flowers with well developed nectaries are an adaptation for -

A. Chiropterophily

B. Entomophily

C. Anemophily

D. Hydrophily

Answer: B



View Text Solution

7. Micropyle occurs in-

A. ovary

B. ovule

C. seed

D. Both (b) and (c)

Answer: D



View Text Solution

8. Usually pollen grains are shed at -

A. one-celled stage

B. two-celled stage

C. four-celled stage

D. five-celled stage

Answer: B



View Text Solution

9. Meiosis occurs in-

- A. endosperm cells
- B. intercalary meristems
- C. apical meristems
- D. spore mother cells

Answer: D



[View Text Solution](#)

10. In angiosperms, triple fusion is required in the formation of-

- A. embryo
- B. endosperm
- C. suspensor
- D. fruit wall

Answer: B



11. In the embryos of a typical dicot and a grass, true homologous structures are:

- A. Coleorhiza and coleoptile
- B. Coleoptile and scutellum
- C. Cotyledons and scutellum
- D. Hypocotyl and radicle.

Answer: C



12. Embryo sac is also called-

A. microspore

B. megaspore

C. megagametophyte

D. microgametophyte

Answer: C



View Text Solution

13. Sexual reproduction in flowering plants was discovered by-

A. Carmerarius

B. Nawaschin

C. Strasburger

D. Maheshwari

Answer: C



View Text Solution

14. Which among the following exhibit Anemophily?

A. Salvia

B. Vallisneria

C. Coconut

D. Bottle brush

Answer: C



View Text Solution

15. Which one of the following is not found in a female gametophyte of an angiosperm ?

A. Germ pore

B. Synergids

C. Filiform apparatus

D. Central cell

Answer: A



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16. Which of the following is a post-fertilisation event & in flowering plants?

A. Transfer of pollen grains

B. Embryo development

C. Formation of flower

D. Formation of pollen grains

Answer: B



View Text Solution

17. The gamete mother cell is known as:

A. Diploid

B. Meocytes

C. Haploid

D. Isogamete

Answer: B



View Text Solution

18. Among the terms listed below, those that are not technically correct names for a floral whorl are:

- (i) Androecium (ii) Carpel
(iii) Corolla (iv) Sepal

A. (i) and (iv)

B. (iii) and (iv)

C. (ii) and (iv)

D. (i) and (ii)

Answer: C



[View Text Solution](#)

19. The given below are the steps performed in an artificial hybridisation programme in plants with bisexual flowers.

(i) Re-bagging

(ii) Emasculation

(iii) Dusting the pollen on stigma

(iv) Bagging

(v) Collection of pollen grains from male parent

(vi) Selection of male and female parent plants

Select the correct option with the correct sequence of these events.

A. (v) \rightarrow (ii) \rightarrow (i) \rightarrow (iv) \rightarrow (iii) \rightarrow
(vi)

B. (ii) \rightarrow (v) \rightarrow (vi) \rightarrow (iv) \rightarrow (iii) \rightarrow
(i)

C. (v) \rightarrow (ii) \rightarrow (i) \rightarrow (iv) \rightarrow (iii) \rightarrow
(vi)

D. (vi) \rightarrow (ii) \rightarrow (iv) \rightarrow (v) \rightarrow (iii) \rightarrow
(i)

Answer: D



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20. Marchantia is a:

- A. Monoecious plant
- B. Homothallic plant
- C. Dioecious plant
- D. Bisexual plant

Answer: C



[View Text Solution](#)

21. Which is the innermost wall layer of microsporangium?

- A. Tapetum
- B. Epidermis
- C. Endothecium
- D. Endodermis

Answer: A



[View Text Solution](#)

22. Sporopollenin occurs in-

- A. female gametophyte
- B. male gametophyte
- C. vegetative cells of pollen grain
- D. exine of pollen wall

Answer: D



[View Text Solution](#)

23. In a flower, if the megaspore mother cell forms megaspores without undergoing meiosis and if one of the megaspores develops into an embryo sac, its nuclei would be:

A. Haploid

B. Diploid

C. A few haploid and a few diploid

D. With varying ploidy.

Answer: B



[View Text Solution](#)

24. The part that determines the compatible nature of pollen grains is:

A. stigma

B. style

C. ovary

D. ovule

Answer: A



 [View Text Solution](#)

25. The number of microsporangia in an anther is:

A. 2

B. 3

C. 4

D. 1

Answer: C



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26. Read the following statements about self-incompatibility and select the option with correct statements.

(i) It is a device to prevent inbreeding

(ii) This is a genetic mechanism

(iii) It ensures cross-fertilisation

(iv) It prevents self-pollen from fertilising the ovules by inhibiting pollen germination of pollen tube growth in the pistil

A. (i) and (ii)

B. (ii) and (iii)

C. (i), (ii), and (iv)

D. All of the above

Answer: D



View Text Solution

27. The stamens represent the:

A. microsporophylls

B. male gametophyte

C. microsporangia

D. None of these

Answer: A



View Text Solution

28. A 3-celled pollen grain has:

A. one vegetative cell, one generative cell,
and one male gamete.

B. one vegetative cell, one generative cell,
and two male gametes.

C. one generative cell and two male
gametes.

D. one vegetative cell and two male
gametes.

Answer: D



View Text Solution

29. Select the incorrect statement about sporopollenin.

A. Exine is made up of sporopollenin.

B. It can withstand high temperatures and strong acids and alkali.

C. It can be degraded by enzymes.

D. Both (a) and (b)

Answer: C



View Text Solution

30. A typical angiospermic embryo sac is:

A. 7-celled and 7-nucleate.

B. 8-celled and 7-nucleate.

C. 7-celled and 8-nucleate.

D. None of these

Answer: C



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31. Starting from the innermost part, the correct sequence of parts in an ovule are-

- A. egg, nucleus, embryo sac, integument
- B. egg, embryo sac, nucellus, integument
- C. embryo sac, egg, nucellus, integument
- D. egg, embryo sac, integument, nucellus

Answer: B



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32. Filiform apparatus is a characteristic feature of -

A. suspensor cells

B. egg

C. synergids

D. zygote

Answer: C



View Text Solution

33. Synergids are-

A. Haploid

B. Diploid

C. Triploid

D. Tetraploid

Answer: A



View Text Solution

34. In angiosperms, triple fusion is required in the formation of-

A. embryo

B. endosperm

C. suspensor

D. fruit wall

Answer: B



View Text Solution

35. Double fertilisation involve-

A. Fertilisation of the egg by two male gametes

B. Fertilisation of two eggs in the same embryo sac by two sperms brought by one pollen tube

C. Fertilisation of the egg and the central cell by two sperms brought by different pollen tubes

D. Fertilisation of egg and central cell by two sperms brought by the same pollen tube

Answer: D



View Text Solution

36. After fertilisation, the integuments of an ovule develop into:

A. Seed

B. Seed coat

C. Fruit

D. Fruit wall

Answer: B



View Text Solution

37. Fragrant flowers with well developed nectaries are an adaptation for-

A. Chiropterophily

B. Anemophily

C. Entomophily

D. Hydrophily

Answer: C



View Text Solution

38. Seedless banana is-

A. Parthenocarpic fruit

B. Drupe fruit

C. Multiple fruit

D. Tree fruit

Answer: A



[View Text Solution](#)

Choose The Odd One Out Of The Following

1. Which of the following is odd one out with reference to sexual reproduction?

- A. Diverse organisms show great diversity
in sexual mode of reproduction
- B. Juvenile phase is called vegetative phase
in plants
- C. Offsprings are not identical to the plants
- D. Fusion of gametes results in formation
of zygote

Answer: A



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2. Which of the following is odd one out with reference to sexual reproductive structures?

A. Stamen

B. Pistil

C. Pollen grain

D. Eyes of potato

Answer: D



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Numerical Based Questions

1. The number of meiotic divisions required for the formation of 50 functional megaspores is:

A. 75

B. 25

C. 100

D. 50

Answer: D



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2. Number of meiotic divisions required to produce 200 seeds of pea would be:

A. 200

B. 400

C. 300

D. 250

Answer: D



View Text Solution

3. Endosperm cell of an angiosperm has 36 chromosomes. The number of chromosomes in the gametes would be-

A. 11

B. 12

C. 8

D. 9

Answer: B



[View Text Solution](#)

Fill In The Blanks

1. In angiosperms lead to the formation of a mature male gametophyte from a pollen mother cell.

A. two meiotic divisions

B. three mitotic division

C. two mitotic and one meiotic division

D. a single mitotic division

Answer: C



[View Text Solution](#)

2. discovered double fertilisation in Lilium and Fritillaria.

A. Nawaschin

B. Strasburger

C. Leeuwenhoek

D. Both (a) and (b)

Answer: A



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3.comprises the egg apparatus.

- A. Polar nuclei
- B. Antipodal cells
- C. Egg cell and synergids
- D. Male gametes

Answer: C



View Text Solution

4. Pollen grains are well preserved as fossils because of the presence of

A. Exine

B. Intine

C. Germ pores

D. Sporopollenin

Answer: D



View Text Solution

5. Ovule integument gets transformed into

A. Seed

B. Fruit wall

C. Seed coat

D. Cotyledons

Answer: C



View Text Solution

6. The outer layer pollen grain is called

A.... This is made up of B..... which is absent on theC

A. A-intine, B-cellulose, C-micropyle

B. A-exine, B-sporopollenin, C-germ pores

C. A-intine, B-sporopollenin, C-germ pores

D. A-exine, B-cellulose, C-micropyle

Answer: B



View Text Solution

7. Embryo sac is to ovule as is to an anther.

A. Stamen

B. Filament

C. Pollen grain

D. Androecium

Answer: C



View Text Solution

8. Larger nucleus in a pollen grain is called.....

A. callus

B. generative nucleus

C. vegetative nucleus

D. none of these

Answer: B



View Text Solution

9. Microsporogenesis is the formation of

A and megasporogenesis is the formation of B.

A. A-3-celled pollen grains, B-female gametophyte

B. A-microspores, B-megaspores

C. A-3-celled pollen grains, B-megaspores

D. A-microspores, B- female gametophyte

Answer: B





Match The Following

1. Match column I with column II and select the correct option from the given codes.

Column I	Column II
A. Integuments	(i) A mass of cells
B. Chalaza	(ii) Stalk of ovule
C. Funicle	(iii) Protective envelopes
D. Nucellus	(iv) Basal part of the ovule

A. A-(iii), B-(i), C-(iii), D-(iv)

B. A-(ii), B-(i), C-(iii), D-(iv)

C. A-(ii), B-(iii), C-(i), D-(ii)

D. A-(iii), B-(iv), C-(ii), D-(i)

Answer: D



View Text Solution

2. Match the items given in column I with those given in column II and choose the

correct option given below:

Column I	Column II
A. Tapetum	(i) Oxalis and Commelina
B. Chasmogamous Flowers	(ii) Allogamy
C. Hydrophily	(iii) Nourishes the developing pollen grains
D. Xenogamy	(iv) Zostera

A. A-(ii), B-(iv), C-(i), D-(iii)

B. A-(iii), B-(iv), C-(ii), D-(i)

C. A-(iii), B-(i), C-(iv), D-(i)

D. A-(ii), B-(i), C-(iii), D-(iv)

Answer: C



3. Match the structures given in column I with their ploidy levels given in column II and select the correct option.

Column I (Structures)	Column II (Ploidy)
A. Megaspore	(i) $2n$
B. Microspore mother cell	(ii) $(n + n)$
C. Central cell	(iii) n
D. Antipodal cell	

A. A-(ii), B-(i), C-(iii), D-(i)

B. A-(iii), B-(i), C-(ii), D-(iii)

C. A-(i), B-(i), C-(ii), D-(iii)

D. A-(i), B-(i), C-(ii), D-(iii)

Answer: B



View Text Solution

4. Match the parts given in column I with the structures that will be formed from these parts given in column II and select the correct

option.

Column I (Parts)	Column II (Structures formed)
A. Ovule	(i) Endosperm
B. Nucellus	(ii) Seed
C. Polar nuclei	(iii) Perisperm

A. A-(ii), B-(iii), C-(i)

B. A-(iii), B-(i), C-(ii)

C. A-(iii), B-(ii), C-(i)

D. A-(i), B-(i), C-(iii)

Answer: A



View Text Solution

5. Match the phenomena given in column I with their descriptions given in column II and choose the option with correct combination.

Column I (Phenomena)	Column II (Descriptions)
A. Polyembryony	(i) Development of fruit without fertilisation
B. Parthenocarpy	(ii) Development of seed without fertilisation
C. Apomixis	(iii) Occurrence of more than one embryo

A. A-(ii), B-(i), C-(iii)

B. A-(iii), B-(i), C-(ii)

C. A-(ii), B-(i), C-(iii)

D. A-(ii), B-(iii), C-(i)

Answer: B



View Text Solution

6. Match the terms given in column I with their examples given in column II and select the correct option.

Column I (Terms)	Column II (Examples)
A. Apomixis	(i) Banana
B. Parthenocarpy	(ii) Mango
C. Polyembryony	(iii) Grasses

A. A-(ii), B-(i), C-(iii)

B. A-(iii), B-(i), C-(ii)

C. A-(iii), B-(ii), C-(i)

D. A-(i), B-(iii), C-(ii)

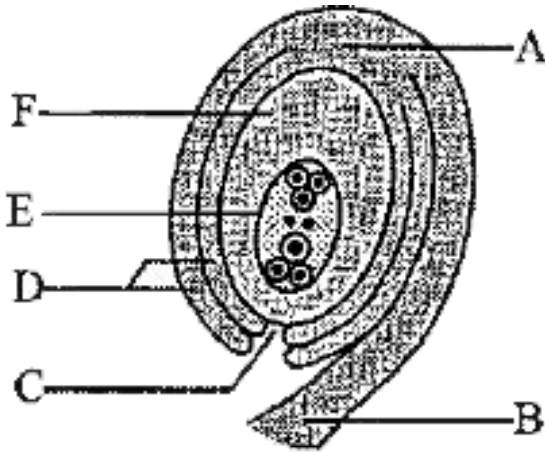
Answer: B



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Figure Based Questions

1. Identify the parts labelled as A to F in the given.



A. A-Funicle, B-Embryo sac, C-Integuments,

D-Chalaza, E-Nucellus, F-Micropyle

B. A-Chalaza, B-Funicle, C-Micropyle, D-

Integuments, E-Embryo sac, F-Nucellus

C. A-Embryo sac, B-Funicle, C-Chalaza, D-

Integuments, E-Nucellus, F-Micropyle

D. A-Chalaza, B-Funicle, C-Micropyle, D-

Integuments, E-Nucellus, F-Embryo sac

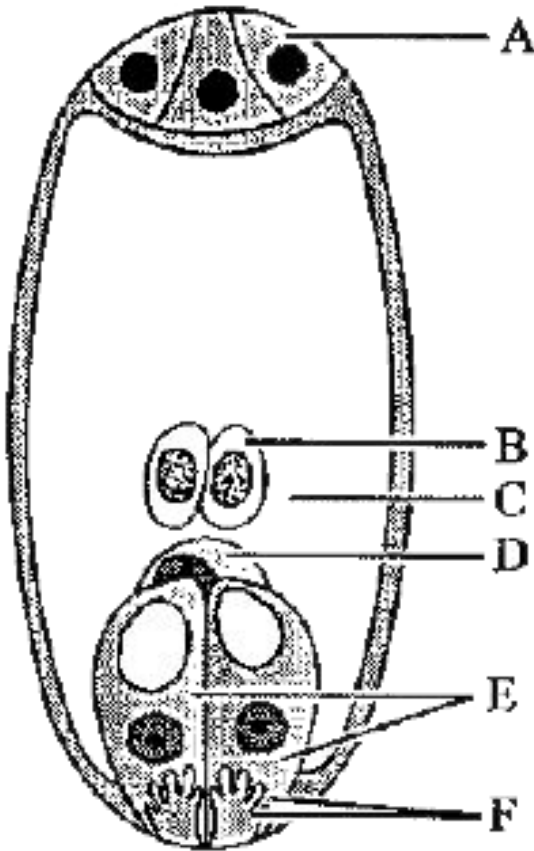
Answer: B



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2. The diagram given below represents different cells of a typical angiospermic embryo sac labelled from A to F. Identify these

cells and select the correct option.



A. A-Antipodals, B-Polar nuclei, C-Central cell, D-Egg, E-Synergids, F-Filiform apparatus

B. A-Antipodals, B-Central cell, C-Polar nuclei, D-Egg, E-Synergids, F-Filiform apparatus

C. A-Filiform apparatus, B-Polar nuclei, C-Central cell, D-Synergids, E-Egg, F-Antipodals

D. A-Filiform apparatus, B-Central cell, C-Polar nuclei, D-Antipodals, E-Egg: F-Synergids

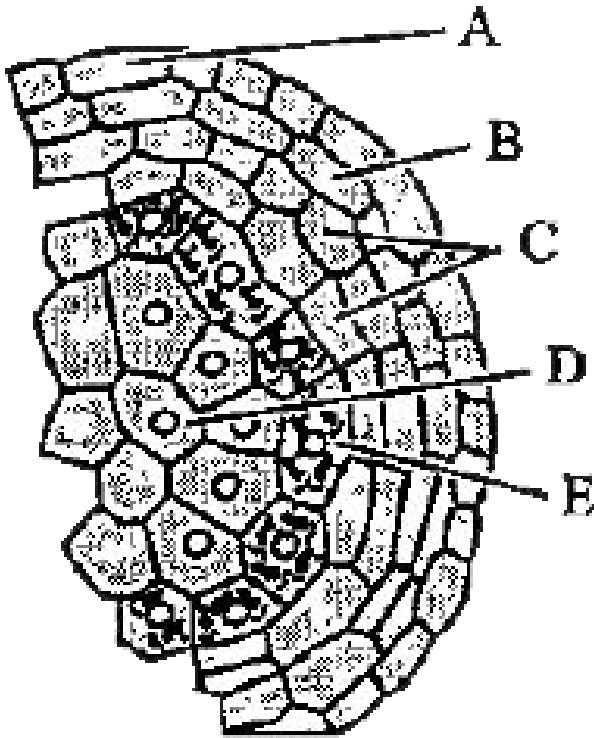
Answer: A



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3. The diagram below represents the microsporangium in an enlarged view. Identify the parts labelled from A to E and select the

correct option.



A. A-Epidermis, B-Endothecium, C-Middle layers, D-Sporogenous tissue, E-Tapetum

B. A-Epidermis, B-Endothecium, C-Middle layers, D-Tapetum, E-Sporogenous tissue

C. A-Endothecium, B-Epidermis, C-Middle layers, D-Sporogenous tissue, E-Tapetum

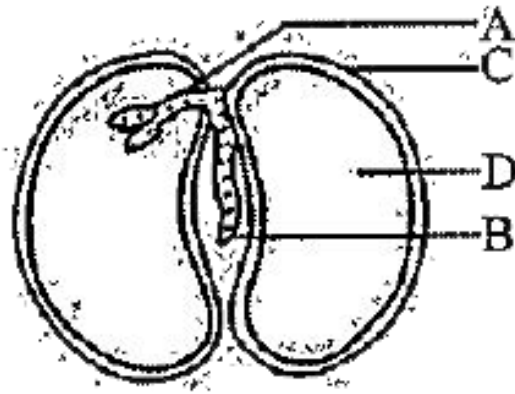
D. A-Middle layers, B-Epidermis, C-Sporogenous tissue, D-Tapetum, E-Endothecium

Answer: A



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4. The image given below shows the parts of a seed. Select the option from which the part of the seed labelled as C develops.



A. Zygote

B. Primary endosperm cell

C. Integuments of ovule

D. None of these

Answer: C



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Assertion And Reason

1. Assertion: Gynoecium consists of pistil.

Reason: It represents the male reproductive part in flowering plants.

A. Both assertion and reason are true and reason is the correct explanation of assertion.

B. Both assertion and reason are true, but reason is not the correct explanation of assertion.

C. Assertion is true, but reason is false.

D. Both assertion and reason are false.

Answer: C



View Text Solution

2. Assertion: Megaspore mother cell undergoes meiosis to produce four megaspores.

Reason: Megaspore mother cell and megaspore both are haploid.

A. Both assertion and reason are true and reason is the correct explanation of assertion.

B. Both assertion and reason are true, but reason is not the correct explanation of assertion.

C. Assertion is true, but reason is false.

D. Both assertion and reason are false.

Answer: C



View Text Solution

3. Assertion: Pollen grain of angiosperm is considered as a male gametophyte.

Reason: Pollen grain consists of stigma, style, and ovary.

A. Both assertion and reason are true and reason is the correct explanation of assertion.

B. Both assertion and reason are true, but reason is not the correct explanation of assertion.

C. Assertion is true, but reason is false.

D. Both assertion and reason are false.

Answer: C



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4. Assertion: In a microsporangium, the tapetal cells possess high cytoplasm and generally have a single prominent nucleus.

A. Both assertion and reason are true and reason is the correct explanation of assertion.

B. Both assertion and reason are true, but reason is not the correct explanation of assertion.

C. Assertion is true, but reason is false.

D. Both assertion and reason are false.

Answer: D



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Source Based Questions

1. Read the passages and answer the questions that follow:

A typical stamen shows two important parts - the long and slender stalk called the filament, and the terminal generally bilobed structure called the anther. The proximal end of the filament is attached to the thalamus or the petal of the flower. The number and length of stamens are variable in flowers of different

species.

A typical angiosperm anther is bilobed with each lobe having two theca, i.e., they are dithecous.

Often a longitudinal groove runs lengthwise separating the theca. The bilobed nature of an anther is very distinct in the transverse section of the anther. The anther is a four-sided (tetragonal) structure consisting of four microsporangia located at the corners, two in each lobe. The microsporangia develop further and become pollen sacs. They extend longitudinally all through the length of an

anther and are packed with pollen grains.

The long and slender stalk of a stamen is called:

A. Filament

B. Anther

C. Connective

D. None of the above

Answer: A



View Text Solution

2. Read the passages and answer the questions that follow:

A typical stamen shows two important parts - the long and slender stalk called the filament, and the terminal generally bilobed structure called the anther. The proximal end of the filament is attached to the thalamus or the petal of the flower. The number and length of stamens are variable in flowers of different species.

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The terminal generally bilobed structure of stamen is called:

A. Filament

B. Anther

C. Sporangium

D. All of the above

Answer: B



View Text Solution

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A typical stamen shows two important parts -

the long and slender stalk called the filament, and the terminal generally bilobed structure called the anther. The proximal end of the filament is attached to the thalamus or the petal of the flower. The number and length of stamens are variable in flowers of different species.

A typical angiosperm anther is bilobed with each lobe having two theca, i.e., they are dithecous.

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section of the anther. The anther is a four-sided (tetragonal) structure consisting of four microsporangia located at the corners, two in each lobe. The microsporangia develop further and become pollen sacs. They extend longitudinally all through the length of an anther and are packed with pollen grains.

A typical angiosperm anther is bilobed with each lobe having two theca, i.e., they are:

A. Monothealous

B. Dithealous

C. Trithealous

D. Quadrithecous

Answer: B



View Text Solution

4. Read the passages and answer the questions that follow:

A typical stamen shows two important parts - the long and slender stalk called the filament, and the terminal generally bilobed structure called the anther. The proximal end of the

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each lobe. The microsporangia develop further and become pollen sacs. They extend longitudinally all through the length of an anther and are packed with pollen grains.

In tetragonal structure of anther how many microsporangia are present ?

A. 32

B. 16

C. 8

D. 4

Answer: D



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5. A typical microsporangium in transverse section appears near circular in outline. It is generally surrounded by four wall layers - the epidermis, endothecium, middle layers and the tapetum. The outer three wall layers perform the function of protection and help in dehiscence of anther to release the pollen. The innermost wall layer is the tapetum. It nourishes the developing pollen grains. When the anther is young, a group of compactly

arranged homogenous cells called the sporogenous tissue occupies the centre of each microsporangium. As the anther develops, the cells of the sporogenous tissue undergo meiotic divisions to form microspore tetrads.

As each cell of the sporogenous tissue is capable of giving rise to a microspore tetrad. Each one is a potential pollen or microspore mother cell. The process of formation of microspores from a pollen mother cell (PMC) through meiosis is called microsporogenesis. The microspores, as they are formed, are

arranged in a cluster of four cells-the
.microspore tetrad.

If we cut Microsporangium transversely how
many layers are found in the wall of
Microsporangium?

A. 1

B. 2

C. 3

D. 4

Answer: D



6. A typical microsporangium in transverse section appears near circular in outline. It is generally surrounded by four wall layers - the epidermis, endothecium, middle layers and the tapetum. The outer three wall layers perform the function of protection and help in dehiscence of anther to release the pollen. The innermost wall layer is the tapetum. It nourishes the developing pollen grains. When the anther is young, a group of compactly

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arranged in a cluster of four cells-the
.microspore tetrad.

Which of the following is the innermost wall
layer of Microsporangium?

- A. Epidermis
- B. Endodermis
- C. Middle Layer
- D. Tapetum

Answer: D



View Text Solution

7. A typical microsporangium in transverse section appears near circular in outline. It is generally surrounded by four wall layers - the epidermis, endothecium, middle layers and the tapetum. The outer three wall layers perform the function of protection and help in dehiscence of anther to release the pollen. The innermost wall layer is the tapetum. It nourishes the developing pollen grains. When the anther is young, a group of compactly arranged homogenous cells called the

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.microspore tetrad.

Which among the following layers of microsporangium nourishes the developing pollen grains?

- A. Epidermis
- B. Endodermis
- C. Middle Layer
- D. Tapetum

Answer: D



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8. A typical microsporangium in transverse section appears near circular in outline. It is generally surrounded by four wall layers - the epidermis, endothecium, middle layers and the tapetum. The outer three wall layers perform the function of protection and help in dehiscence of anther to release the pollen. The innermost wall layer is the tapetum. It nourishes the developing pollen grains. When the anther is young, a group of compactly arranged homogenous cells called the

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.microspore tetrad.

What is called a group of compactly arranged homogeneous cells of anther?

- A. Endosperm
- B. Double fertilization
- C. Sporogenous Tissue
- D. Syngamy

Answer: D



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9. A typical microsporangium in transverse section appears near circular in outline. It is generally surrounded by four wall layers - the epidermis, endothecium, middle layers and the tapetum. The outer three wall layers perform the function of protection and help in dehiscence of anther to release the pollen. The innermost wall layer is the tapetum. It nourishes the developing pollen grains. When the anther is young, a group of compactly arranged homogenous cells called the sporogenous tissue occupies the centre of

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What type of cell division takes place in the sporogenous tissue to form microspore tetrads?

- A. Amitosis
- B. Mitosis
- C. Meiosis
- D. None of these

Answer: C



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10. The pollen grains represent the male gametophytes. Pollen grains are generally spherical measuring about 25-50 micrometers in diameter. It has a prominent two-layered wall. The hard outer layer called the exine is made up of sporopollenin which is one of the most resistant organic material known. It can withstand high temperatures and strong acids and alkali. No enzyme that degrades sporopollenin is so far known. Pollen grain exine has prominent apertures called germ pores where sporopollenin is absent. Pollen

grains are well preserved as fossils because of the presence of sporopollenin. The exine exhibits a fascinating array of patterns and designs. The inner wall of the pollen grain is called the intine. It is a thin and continuous layer made up of cellulose and pectin. The cytoplasm of pollen grain is surrounded by a plasma membrane. When the pollen grain is mature it contains two cells, the vegetative cell and generative cell. The vegetative cell is bigger, has abundant food reserve and a large irregularly shaped nucleus. The generative cell is small and floats in the cytoplasm of the

vegetative cell.

Which of the following structures is represented by pollen grains?

A. Female Gametophytes

B. Male Gametophytes

C. Cellular Endosperm

D. Zygote

Answer: B



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11. The pollen grains represent the male gametophytes. Pollen grains are generally spherical measuring about 25-50 micrometers in diameter. It has a prominent two-layered wall. The hard outer layer called the exine is made up of sporopollenin which is one of the most resistant organic material known. It can withstand high temperatures and strong acids and alkali. No enzyme that degrades sporopollenin is so far known. Pollen grain exine has prominent apertures called germ pores where sporopollenin is absent. Pollen

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vegetative cell.

What is the general form and size of pollen grains?

A. Rectangular, 10-20 micrometres

B. Square, 5-10 micrometres

C. Spherical , 20-50 micrometres

D. Spherical , 2-4 micrometres

Answer: C



View Text Solution

12. The pollen grains represent the male gametophytes. Pollen grains are generally spherical measuring about 25-50 micrometers in diameter. It has a prominent two-layered wall. The hard outer layer called the exine is made up of sporopollenin which is one of the most resistant organic material known. It can withstand high temperatures and strong acids and alkali. No enzyme that degrades sporopollenin is so far known. Pollen grain exine has prominent apertures called germ pores where sporopollenin is absent. Pollen

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vegetative cell.

What is called the hard outer layer of a pollen grain?

A. Germ pore

B. Exine

C. Intine

D. Tapetum

Answer: B



View Text Solution

13. The pollen grains represent the male gametophytes. Pollen grains are generally spherical measuring about 25-50 micrometers in diameter. It has a prominent two-layered wall. The hard outer layer called the exine is made up of sporopollenin which is one of the most resistant organic material known. It can withstand high temperatures and strong acids and alkali. No enzyme that degrades sporopollenin is so far known. Pollen grain exine has prominent apertures called germ pores where sporopollenin is absent. Pollen

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vegetative cell.

The exine of pollen grain bears an aperture which is known as:

A. Tapetum

B. Epidermis

C. Germ pore

D. Chalaza

Answer: C



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14. The gynoecium represents the female reproductive part of the flower. The gynoecium may consist of a single pistil (monocarpellary) or may have more than one pistil (multicarpellary). When there are more than one, the pistils may be fused together (syncarpous) or may be free (apocarpous). Each pistil has three parts, the stigma, style and ovary. The stigma serves as a landing platform for pollen grains. The style is the elongated slender part beneath the stigma. The basal bulged part of the pistil is the ovary.

Inside the ovary is the ovarian cavity (locule). The placenta is located inside the ovarian cavity. It has become a fashion in recent years to use pollen tablets as food supplements. In western countries, a large number of pollen products in the form of tablets and syrups are available in the market. Pollen consumption has been claimed to increase the performance of athletes and race horses. Arising from the placenta are the megasporangia, commonly called ovules. The number of ovules in an ovary may be one (wheat, paddy, mango) to many (papaya, water melon, orchids).

Which one of the following structure represents the female reproductive part of the flower?

A. Microsporangium

B. Placentation

C. Gynoecium

D. Ovule

Answer: C



View Text Solution

15. The gynoecium represents the female reproductive part of the flower. The gynoecium may consist of a single pistil (monocarpellary) or may have more than one pistil (multicarpellary). When there are more than one, the pistils may be fused together (syncarpous) or may be free (apocarpous). Each pistil has three parts, the stigma, style and ovary. The stigma serves as a landing platform for pollen grains. The style is the elongated slender part beneath the stigma. The basal bulged part of the pistil is the ovary.

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If we study the gynoecium in well developed angiospermic plant which of the following structure(s) is/are found?

A. Monocarpellary pistil

B. Multicarpellary pistil

C. Both Monocarpellary and Multicarpellary pistils

D. None of the above

Answer: C



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16. The gynoecium represents the female reproductive part of the flower. The gynoecium may consist of a single pistil (monocarpellary) or may have more than one pistil (multicarpellary). When there are more than one, the pistils may be fused together (syncarpous) or may be free (apocarpous). Each pistil has three parts, the stigma, style and ovary. The stigma serves as a landing platform for pollen grains. The style is the elongated slender part beneath the stigma.

The basal bulged part of the pistil is the ovary. Inside the ovary is the ovarian cavity (locule). The placenta is located inside the ovarian cavity. It has become a fashion in recent years to use pollen tablets as food supplements. In western countries, a large number of pollen products in the form of tablets and syrups are available in the market. Pollen consumption has been claimed to increase the performance of athletes and race horses. Arising from the placenta are the megasporangia, commonly called ovules. The number of ovules in an ovary may be one (wheat, paddy, mango) to

many (papaya, water melon, orchids).

Which of the following structures is / are a part of pistil?

A. Stigma

B. Style

C. Ovary

D. All of the above

Answer: D



View Text Solution

17. The gynoecium represents the female reproductive part of the flower. The gynoecium may consist of a single pistil (monocarpellary) or may have more than one pistil (multicarpellary). When there are more than one, the pistils may be fused together (syncarpous) or may be free (apocarpous). Each pistil has three parts, the stigma, style and ovary. The stigma serves as a landing platform for pollen grains. The style is the elongated slender part beneath the stigma. The basal bulged part of the pistil is the ovary.

Inside the ovary is the ovarian cavity (locule). The placenta is located inside the ovarian cavity. It has become a fashion in recent years to use pollen tablets as food supplements. In western countries, a large number of pollen products in the form of tablets and syrups are available in the market. Pollen consumption has been claimed to increase the performance of athletes and race horses. Arising from the placenta are the megasporangia, commonly called ovules. The number of ovules in an ovary may be one (wheat, paddy, mango) to many (papaya, water melon, orchids).

Which of the following structures or parts of a pistil serves as a landing platform for pollen grains?

A. Ovary

B. Style

C. Stigma

D. All of the above

Answer: C



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18. The gynoecium represents the female reproductive part of the flower. The gynoecium may consist of a single pistil (monocarpellary) or may have more than one pistil (multicarpellary). When there are more than one, the pistils may be fused together (syncarpous) or may be free (apocarpous). Each pistil has three parts, the stigma, style and ovary. The stigma serves as a landing platform for pollen grains. The style is the elongated slender part beneath the stigma. The basal bulged part of the pistil is the ovary.

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Which of the following structure is the basal bulged part of a pistil?

A. Ovary

B. Placenta

C. Stigma

D. Style

Answer: A



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19. The ovule is a small structure attached to the placenta by means of a stalk called funicle. The body of the ovule fuses with funicle in the region called hilum. Thus, hilum represents the junction between ovule and funicle. Each ovule has one or two protective envelopes called integuments. Integuments encircle the nucellus except at the tip where a small opening called the micropyle is organised. Opposite the micropylar end, is the chalaza, representing the basal part of the ovule. Enclosed within the integuments is a mass of

cells called the nucellus.

Cells of the nucellus have abundant reserve food materials. Located in the nucellus is the embryo sac or female gametophyte. An ovule generally has a single embryo sac formed from a megaspore. Megasporogenesis : The process of formation of megaspores from the megaspore mother cell is called megasporogenesis. Ovules generally differentiate a single megaspore mother cell (MMC) in the micropylar region of the nucellus. It is a large cell containing dense cytoplasm and a prominent nucleus. The MMC

undergoes meiotic division. Meiosis results in the production of four megaspores.

Which of the following structure attaches an ovule to the placenta?

A. Chalaza

B. Stigma

C. Funicle

D. Hilum

Answer: C



View Text Solution

20. The ovule is a small structure attached to the placenta by means of a stalk called funicle. The body of the ovule fuses with funicle in the region called hilum. Thus, hilum represents the junction between ovule and funicle. Each ovule has one or two protective envelopes called integuments. Integuments encircle the nucellus except at the tip where a small opening called the micropyle is organised. Opposite the micropylar end, is the chalaza, representing the basal part of the ovule.

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cytoplasm and a prominent nucleus. The MMC undergoes meiotic division. Meiosis results in the production of four megaspores.

What is called the body of ovule fusing with funicle?

A. Style

B. Hilum

C. Micropyle

D. Antipodal

Answer: B



21. The ovule is a small structure attached to the placenta by means of a stalk called funicle. The body of the ovule fuses with funicle in the region called hilum. Thus, hilum represents the junction between ovule and funicle. Each ovule has one or two protective envelopes called integuments. Integuments encircle the nucellus except at the tip where a small opening called the micropyle is organised. Opposite the micropylar end, is the chalaza,

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nucellus. It is a large cell containing dense cytoplasm and a prominent nucleus. The MMC undergoes meiotic division. Meiosis results in the production of four megaspores.

What is called the protective layer of each ovule?

- A. Chalaza
- B. Embryo sac
- C. Integument
- D. Nucellus

Answer: C



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22. The ovule is a small structure attached to the placenta by means of a stalk called funicle. The body of the ovule fuses with funicle in the region called hilum. Thus, hilum represents the junction between ovule and funicle. Each ovule has one or two protective envelopes called integuments. Integuments encircle the nucellus except at the tip where a small opening called the micropyle is organised. Opposite the micropylar end, is the chalaza,

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nucellus. It is a large cell containing dense cytoplasm and a prominent nucleus. The MMC undergoes meiotic division. Meiosis results in the production of four megaspores.

Which of the following represents the full form of MMC?

- A. Micropyle Mother Cell
- B. Multiple Mother Cell
- C. Mother Micropyle Cell
- D. Megaspore Mother Cell

Answer: D



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