

Fill in the blanks

1. Gymnosperms are called naked seeded plants because their seeds are not enclosed in a _____.

Answer: fruit

2. The ovules of gymnosperms remain _____ before and after fertilisation.

Answer: exposed

3. Sequoia is one of the _____ tree species.

Answer: tallest

4. The roots of gymnosperms are generally _____ roots.

Answer: tap

5. In Pinus, roots show fungal association called _____.

Answer: mycorrhiza

6. In Cycas, specialised roots associated with cyanobacteria are called _____ roots.

Answer: coralloid

7. The leaves of conifers are usually _____-like.

Answer: needle

8. Thick cuticle and _____ stomata help reduce water loss in

gymnosperms.

Answer: sunken

9. Gymnosperms are _____ because they produce microspores and megaspores.

Answer: heterosporous

10. Sporangia are borne on leaf-like structures called _____.

Answer: sporophylls

11. Compact cone-like structures formed by sporophylls are called _____.

Answer: strobili

12. Male cones are also called _____ strobili.

Answer: microsporangiate

13. The male gametophyte of gymnosperms is called a _____ grain.

Answer: pollen

14. Female cones are also called _____ strobili.

Answer: macrosporangiate

15. The central tissue of the ovule is called _____.

Answer: nucellus

16. The protective coverings around the nucellus are called _____.

Answer: integuments

17. The female gametophyte bears female sex organs called _____.

Answer: archegonia

18. Pollination in gymnosperms mainly occurs through _____ currents.

Answer: air

19. After fertilisation, the zygote develops into an _____.

Answer: embryo

20. The seeds of gymnosperms are _____ because they are not covered by fruits.

Answer: naked

21. Angiosperms are commonly known as _____ plants.

Answer: flowering

22. In angiosperms, pollen grains and ovules are produced inside _____.

Answer: flowers

23. In angiosperms, seeds are enclosed within _____.

Answer: fruits

24. Wolffia is the _____
flowering plant.

Answer: smallest

25. Eucalyptus may grow over
_____ metres tall.

Answer: 100

26. Angiosperms provide us with
food, fodder, fuel and _____.

Answer: medicines

27. Angiosperms are divided into
_____ classes.

Answer: two

28. Seeds with two cotyledons
belong to _____.

Answer: dicotyledons

29. Seeds with one cotyledon belong
to _____.

Answer: monocotyledons

30. The male gametes in
gymnosperms are carried to the
archegonia through the _____
tube.

Answer: pollen

Short QAs

1. Why are gymnosperms called naked seeded plants?

Gymnosperms are called naked seeded plants because their ovules and seeds are not enclosed within an ovary or fruit.

2. Name the tallest gymnosperm tree.

Sequoia is one of the tallest gymnosperm trees.

3. What type of roots are found in gymnosperms?

Gymnosperms generally possess tap roots.

4. What are mycorrhizal roots?

Mycorrhizal roots are roots associated with fungi, as seen in Pinus.

5. What are coralloid roots?

Coralloid roots are specialised roots found in Cycas associated with nitrogen-fixing cyanobacteria.

6. Why are needle-like leaves present in conifers?

Needle-like leaves reduce surface area and help in reducing water loss.

7. What is heterospory?

Production of two different types of spores, microspores and megaspores, is called heterospory.

8. What are strobili?

Strobili are compact cone-like structures formed by spirally arranged sporophylls.

9. What is a pollen grain?

A pollen grain is the highly reduced male gametophyte of gymnosperms.

10. What are microsporangiate strobili?

Male cones bearing microsporophylls and microsporangia are called microsporangiate strobili.

11. What are macrosporangiate strobili?

Female cones bearing megasporophylls and ovules are called macrosporangiate strobili.

12. Name a gymnosperm in which male and female cones occur on the same plant.

Pinus bears male and female cones on the same plant.

13. Name a gymnosperm in which male and female cones occur on different plants.

Cycas bears male and female cones on different plants.

14. What is an ovule?

The structure formed by nucellus and integuments is called an ovule.

15. How are gymnosperms different from bryophytes and pteridophytes?

In gymnosperms, male and female gametophytes are not free-living and remain inside the sporangia.

16. How does pollination occur in gymnosperms?

Pollination occurs through air currents carrying pollen grains to the ovules.

17. What develops from the zygote in gymnosperms?

The zygote develops into an embryo.

18. What are angiosperms?

Angiosperms are flowering plants whose seeds are enclosed within fruits.

19. Where are pollen grains and ovules formed in angiosperms?

They are formed inside flowers.

20. Name the smallest flowering plant.

Wolffia is the smallest flowering plant.

21. Name a very tall angiosperm tree.

Eucalyptus is a very tall angiosperm tree.

22. Mention any two economic uses of angiosperms.

Angiosperms provide:

- Food
- Medicines

23. Into how many classes are angiosperms divided?

Angiosperms are divided into two classes:

1. Dicotyledons
2. Monocotyledons

24. What are dicotyledons?

Plants whose seeds contain two cotyledons are called dicotyledons.

25. What are monocotyledons?

Plants whose seeds contain one cotyledon are called monocotyledons.

MCQs

1. Gymnosperms are called naked seeded plants because:

- A. They do not produce seeds
- B. Seeds are not enclosed in fruits
- C. Seeds are very small
- D. Seeds are green in colour

Answer: B

Explanation: In gymnosperms, ovules and seeds are not enclosed by an ovary wall or fruit, therefore they are called naked seeded plants.

2. Which gymnosperm is one of the tallest tree species?

- A. Cycas
- B. Pinus
- C. Sequoia
- D. Cedrus

Answer: C

Explanation: Sequoia, also called giant redwood, is among the tallest trees in the world.

3. Mycorrhizal roots are found in:

- A. Cycas
- B. Pinus
- C. Cedrus
- D. Sequoia

Answer: B

Explanation: Pinus roots show fungal association called mycorrhiza which helps in absorption of minerals and water.

4. Coralloid roots associated with nitrogen-fixing cyanobacteria are found in:

- A. Pinus
- B. Cycas
- C. Cedrus
- D. Sequoia

Answer: B

Explanation: Cycas possesses coralloid roots that contain nitrogen-fixing cyanobacteria.

5. Needle-like leaves in conifers help to:

- A. Increase transpiration
- B. Store food
- C. Reduce water loss
- D. Attract insects

Answer: C

Explanation: Needle-like leaves reduce surface area and help conserve water.

6. Gymnosperms are heterosporous because they produce:

- A. Roots and stems
- B. Flowers and fruits
- C. Microspores and megaspores
- D. Xylem and phloem

Answer: C

Explanation: Gymnosperms produce two types of spores: microspores (male) and megaspores (female).

7. The male cone in gymnosperms is called:

- A. Macrosporangiate strobilus
- B. Microsporangiate strobilus
- C. Archegonium
- D. Ovule

Answer: B

Explanation: Male cones bear microsporangia and are therefore called microsporangiate strobili.

8. The highly reduced male gametophyte in gymnosperms is:

- A. Ovule
- B. Embryo
- C. Pollen grain
- D. Nucellus

Answer: C

Explanation: The pollen grain represents the reduced male gametophyte.

9. Female cones of gymnosperms bear:

- A. Microsporangia
- B. Ovules

- C. Pollen grains
- D. Rhizoids

Answer: B

Explanation: Female cones contain megasporophylls bearing ovules.

10. In which gymnosperm are male and female cones borne on the same plant?

- A. Cycas
- B. Pinus
- C. Marchantia
- D. Funaria

Answer: B

Explanation: In Pinus, male and female cones occur on the same tree.

11. The female gametophyte in gymnosperms develops from:

- A. Microspore
- B. Megaspore
- C. Zygote
- D. Pollen grain

Answer: B

Explanation: One megaspore develops into the female gametophyte.

12. Pollination in gymnosperms usually occurs through:

- A. Water
- B. Insects
- C. Wind
- D. Animals

Answer: C

Explanation: Pollen grains are carried by air currents to the ovules.

13. In gymnosperms, the ovule develops into:

- A. Fruit
- B. Flower
- C. Seed
- D. Cone

Answer: C

Explanation: After fertilisation, ovules develop into seeds.

14. Which of the following is absent in gymnosperms?

- A. Seeds
- B. Vascular tissue
- C. Fruits
- D. Roots

Answer: C

Explanation: Gymnosperms do not form fruits because ovules are not enclosed in ovaries.

15. Angiosperms are also known as:

- A. Non-vascular plants
- B. Flowering plants
- C. Seedless plants
- D. Amphibians of plant kingdom

Answer: B

Explanation: Angiosperms produce flowers and are therefore called flowering plants.

16. In angiosperms, seeds are enclosed within:

- A. Cones
- B. Sporangia

- C. Fruits
- D. Strobili

Answer: C

Explanation: The ovary develops into a fruit enclosing the seeds.

17. Which is the smallest flowering plant?

- A. Wolffia
- B. Eucalyptus
- C. Pinus
- D. Cycas

Answer: A

Explanation: Wolffia is the smallest known flowering plant.

18. Which angiosperm may grow more than 100 metres tall?

- A. Wolffia
- B. Marchantia
- C. Eucalyptus
- D. Funaria

Answer: C

Explanation: Some species of Eucalyptus grow to heights above 100 metres.

19. Angiosperms are divided into:

- A. Algae and fungi
- B. Liverworts and mosses
- C. Monocotyledons and dicotyledons
- D. Gymnosperms and bryophytes

Answer: C

Explanation: Angiosperms are classified into monocots and dicots based on the number of cotyledons.

20. Plants with one cotyledon are called:

- A. Dicotyledons
- B. Bryophytes
- C. Monocotyledons
- D. Pteridophytes

Answer: C

Explanation: Monocotyledons possess a single cotyledon in the seed

1. Gymnosperms are called naked seeded plants because:

- A. They do not produce seeds
- B. Seeds are not enclosed in fruits
- C. Seeds are very small
- D. Seeds are green in colour

Answer: B

Explanation: In gymnosperms, ovules and seeds are not enclosed by an ovary wall or fruit, therefore they are called naked seeded plants.

2. Which gymnosperm is one of the tallest tree species?

- A. Cycas
- B. Pinus
- C. Sequoia
- D. Cedrus

Answer: C

Explanation: Sequoia, also called giant redwood, is among the tallest trees in the world.

3. Mycorrhizal roots are found in:

- A. Cycas
- B. Pinus
- C. Cedrus
- D. Sequoia

Answer: B

Explanation: Pinus roots show fungal association called mycorrhiza which helps in absorption of minerals and water.

4. Coralloid roots associated with nitrogen-fixing cyanobacteria are found in:

- A. Pinus
- B. Cycas
- C. Cedrus
- D. Sequoia

Answer: B

Explanation: Cycas possesses coralloid roots that contain nitrogen-fixing cyanobacteria.

5. Needle-like leaves in conifers help to:

- A. Increase transpiration
- B. Store food
- C. Reduce water loss
- D. Attract insects

Answer: C

Explanation: Needle-like leaves reduce surface area and help conserve water.

6. Gymnosperms are heterosporous because they produce:

- A. Roots and stems
- B. Flowers and fruits

- C. Microspores and megaspores
- D. Xylem and phloem

Answer: C

Explanation: Gymnosperms produce two types of spores: microspores (male) and megaspores (female).

7. The male cone in gymnosperms is called:

- A. Macrosporangiate strobilus
- B. Microsporangiate strobilus
- C. Archegonium
- D. Ovule

Answer: B

Explanation: Male cones bear microsporangia and are therefore called microsporangiate strobili.

8. The highly reduced male gametophyte in gymnosperms is:

- A. Ovule
- B. Embryo
- C. Pollen grain
- D. Nucellus

Answer: C

Explanation: The pollen grain represents the reduced male gametophyte.

9. Female cones of gymnosperms bear:

- A. Microsporangia
- B. Ovules
- C. Pollen grains
- D. Rhizoids

Answer: B

Explanation: Female cones contain megasporophylls bearing ovules.

10. In which gymnosperm are male and female cones borne on the same plant?

- A. Cycas
- B. Pinus
- C. Marchantia
- D. Funaria

Answer: B

Explanation: In Pinus, male and female cones occur on the same tree.

11. The female gametophyte in gymnosperms develops from:

- A. Microspore
- B. Megaspore
- C. Zygote
- D. Pollen grain

Answer: B

Explanation: One megaspore develops into the female gametophyte.

12. Pollination in gymnosperms usually occurs through:

- A. Water
- B. Insects
- C. Wind
- D. Animals

Answer: C

Explanation: Pollen grains are carried by air currents to the ovules.

13. In gymnosperms, the ovule develops into:

- A. Fruit
- B. Flower
- C. Seed
- D. Cone

Answer: C

Explanation: After fertilisation, ovules develop into seeds.

14. Which of the following is absent in gymnosperms?

- A. Seeds
- B. Vascular tissue
- C. Fruits
- D. Roots

Answer: C

Explanation: Gymnosperms do not form fruits because ovules are not enclosed in ovaries.

15. Angiosperms are also known as:

- A. Non-vascular plants
- B. Flowering plants
- C. Seedless plants
- D. Amphibians of plant kingdom

Answer: B

Explanation: Angiosperms produce flowers and are therefore called flowering plants.

16. In angiosperms, seeds are enclosed within:

- A. Cones
- B. Sporangia
- C. Fruits
- D. Strobili

Answer: C

Explanation: The ovary develops into a fruit enclosing the seeds.

17. Which is the smallest flowering plant?

- A. Wolffia
- B. Eucalyptus
- C. Pinus
- D. Cycas

Answer: A

Explanation: Wolffia is the smallest known flowering plant.

18. Which angiosperm may grow more than 100 metres tall?

- A. Wolffia
- B. Marchantia
- C. Eucalyptus
- D. Funaria

Answer: C

Explanation: Some species of Eucalyptus grow to heights above 100 metres.

19. Angiosperms are divided into:

- A. Algae and fungi
- B. Liverworts and mosses
- C. Monocotyledons and dicotyledons
- D. Gymnosperms and bryophytes

Answer: C

Explanation: Angiosperms are classified into monocots and dicots based on the number of cotyledons.

20. Plants with one cotyledon are called:

- A. Dicotyledons
- B. Bryophytes

C. Monocotyledons

D. Pteridophytes

Answer: C

Explanation: Monocotyledons possess a single cotyledon in the seed