

A-LEVEL

Multiple-choice questions on reproduction in plants and algae.

1. Which of the following is a method of asexual reproduction in plants?

- A) Meiosis
- B) Mitosis
- C) Sporulation
- D) Fertilization

Answer: C) Sporulation

Explanation: Sporulation is a form of asexual reproduction in plants where specialized cells called spores are produced.

2. In seed plants, which structure is responsible for the transfer of pollen?

- A) Stamen
- B) Ovary
- C) Pistil
- D) Anther

Answer: A) Stamen

Explanation: The stamen consists of anther and filament, with the anther producing pollen.

3. What is the primary function of the endosperm in a seed?

- A) Nutrient storage
- B) Protection
- C) Embryo development
- D) Pollination

Answer: A) Nutrient storage

Explanation: The endosperm stores nutrients and provides nourishment to the developing embryo in a seed.

4. Which process involves the fusion of male and female gametes in plants?

- A) Fertilization
- B) Germination
- C) Pollination
- D) Photosynthesis

Answer: A) Fertilization

Explanation: Fertilization is the process where male and female gametes fuse to form a zygote.

5. In algae, what is the reproductive structure responsible for spore formation?

- A) Conidia
- B) Sporangium
- C) Zoospore
- D) Gametangium

Answer: B) Sporangium

Explanation: Sporangium is a structure in algae that produces spores through the process of sporogenesis.

6. What is the main difference between homosporous and heterosporous plants?

- A) Presence of seeds
- B) Type of spores produced
- C) Method of pollination

D) Number of reproductive organs

Answer: B) Type of spores produced

Explanation: Homosporous plants produce a single type of spore, while heterosporous plants produce two different types of spores.

7. Which hormone is involved in the promotion of fruit ripening in plants?

A) Gibberellin

B) Absciscic acid

C) Ethylene

D) Auxin

Answer: C) Ethylene

Explanation: Ethylene is a plant hormone responsible for the ripening of fruits.

8. What is the purpose of the micropyle in a seed?

A) Gas exchange

B) Water absorption

C) Pollen reception

D) Seed germination

Answer: D) Seed germination

Explanation: The micropyle is a small opening in the seed coat through which the radicle emerges during germination.

9. Which structure in angiosperms develops into a seed after fertilization?

- A) Ovule
- B) Carpel
- C) Stamen
- D) Sepal

Answer: A) Ovule

Explanation: The ovule develops into a seed after fertilization in angiosperms.

10. What is the primary function of the anther in a flower?

- A) Seed production
- B) Pollen production
- C) Nectar secretion
- D) Petal formation

Answer: B) Pollen production

Explanation: The anther is the part of the stamen that produces and releases pollen.

11. Which process involves the formation of a diploid zygote from two haploid gametes?

- A) Meiosis
- B) Mitosis
- C) Pollination
- D) Fertilization

Answer: D) Fertilization

Explanation: Fertilization is the process where a diploid zygote is formed by the fusion of haploid male and female gametes.

12. What is the primary role of the ovary in flowering plants?

- A) Pollen production
- B) Seed protection
- C) Egg production
- D) Nectar secretion

Answer: C) Egg production

Explanation: The ovary contains ovules, which house the female gametes (eggs) in flowering plants.

13. In mosses, what is the structure that produces haploid spores by meiosis?

- A) Antheridium
- B) Archegonium
- C) Sporophyte
- D) Gametophyte

Answer: A) Antheridium

Explanation: Antheridia are structures in mosses that produce haploid spores by meiosis.

14. Which part of a flowering plant protects the developing bud before it opens into a flower?

- A) Sepal
- B) Petal
- C) Stamen
- D) Carpel

Answer: A) Sepal

Explanation: Sepals protect the bud and play a role in enclosing and supporting the developing flower.

15. What is the term for the process where a plant produces offspring without the involvement of gametes?

- A) Fertilization
- B) Pollination

C) Vegetative propagation

D) Sporulation

Answer: C) Vegetative propagation

Explanation: Vegetative propagation involves the formation of new plants from non-reproductive plant parts.

16. In which type of reproduction do plants produce offspring by the division of a single parent organism?

A) Sexual reproduction

B) Asexual reproduction

C) Gametic reproduction

D) Sporophytic reproduction

Answer: B) Asexual reproduction

Explanation: Asexual reproduction involves the production of offspring without the involvement of gametes.

17. Which process involves the production of male and female gametes in plants?

A) Gametogenesis

B) Meiosis

C) Mitosis

D) Sporogenesis

Answer: A) Gametogenesis

Explanation: Gametogenesis is the process of formation of male and female gametes.

18. What is the primary function of the stigma in a flower?

A) Pollen production

B) Pollen reception

C) Nectar secretion

D) Seed protection

Answer: B) Pollen reception

Explanation: The stigma is the receptive surface for pollen in a flower.

19. Which of the following is a characteristic of alternation of generations in plant life cycles?

A) Dominance of the gametophyte generation

B) Dominance of the sporophyte generation

C) Absence of spore formation

D) Lack of sexual reproduction

Answer: B) Dominance of the sporophyte generation

Explanation: Alternation of generations involves the alternation between a haploid gametophyte and a diploid sporophyte generation, with the sporophyte being dominant in most plants.

20. What is the primary function of the style in a flower?

- A) Pollen production
- B) Pollen reception
- C) Egg production
- D) Seed protection

Answer: D) Seed protection

Explanation: The style connects the stigma to the ovary and provides a pathway for the pollen tube to reach the ovule.

21. In gymnosperms, where are the female reproductive structures, including the ovules, typically found?

- A) Cone scales
- B) Staminate cone
- C) Pollen cone
- D) Seed cone

Answer: A) Cone scales

Explanation: Female reproductive structures in gymnosperms are typically found on cone scales.

22. Which of the following is a method of asexual reproduction in algae?

- A) Zoospores
- B) Gametes
- C) Conidia
- D) Oospores

Answer: A) Zoospores

Explanation: Zoospores are a type of asexual reproductive structure in algae.

23. What is the structure in angiosperms that encloses and protects the flower bud before it opens?

- A) Sepal
- B) Petal
- C) Stamen
- D) Carpel

Answer: A) Sepal

Explanation: Sepals collectively form the calyx, which protects the flower bud.

24. Which of the following is an example of a nonvascular plant that reproduces by spores?

- A) Fern
- B) Pine tree
- C) Rose bush
- D) Maple tree

Answer: A) Fern

Explanation: Ferns are nonvascular plants that reproduce through the production of spores.

25. What is the term for the fusion of two gametes to form a zygote in plants?

- A) Pollination
- B) Fertilization
- C) Germination
- D) Meiosis

Answer: B) Fertilization

Explanation: Fertilization is the process of gamete fusion, resulting in the formation of a zygote.

26. In seed plants, what is the function of the cotyledon?

- A) Nutrient storage
- B) Photosynthesis
- C) Protection of the seed
- D) Embryo nourishment

Answer: D) Embryo nourishment

Explanation: The cotyledon provides nutrients to the developing embryo within the seed.

27. What is the primary role of the antherozoid in algae?

- A) Gamete production
- B) Spore formation
- C) Pollination
- D) Fertilization

Answer: D) Fertilization

Explanation: Antherozoids are male gametes in algae that play a role in fertilization.

28. Which plant hormone is involved in promoting cell elongation and fruit ripening?

- A) Gibberellin
- B) Auxin
- C) Cytokinin
- D) Absciscic acid

Answer: B) Auxin

Explanation: Auxin is a hormone that promotes cell elongation and is involved in fruit ripening.

29. In which part of a flower is the ovary located?

A) Stamen

B) Petal

C) Sepal

D) Carpel

Answer: D) Carpel

Explanation: The ovary is part of the carpel, the female reproductive organ in a flower.

30. What is the purpose of the perianth in a flower?

A) Protection

B) Pollination

C) Nutrient storage

D) Fertilization

Answer: A) Protection

Explanation: The perianth, consisting of sepals and petals, protects the reproductive structures within the flower.

31. What type of cell division produces spores in plants?

- A) Mitosis
- B) Meiosis
- C) Gametogenesis
- D) Fertilization

Answer: B) Meiosis

Explanation: Meiosis is the cell division process that produces haploid spores in plants.

32. In mosses, which structure produces the female gametes (eggs)?

- A) Antheridium
- B) Archegonium
- C) Sporophyte
- D) Gametophyte

Answer: B) Archegonium

Explanation: Archegonia are structures in mosses that produce female gametes.

33. What is the term for the transfer of pollen from an anther to a stigma within the same flower?

- A) Cross-pollination
- B) Self-pollination
- C) Wind pollination
- D) Animal pollination

Answer: B) Self-pollination

Explanation: Self-pollination involves the transfer of pollen within the same flower.

34. Which process involves the formation of a new plant from a vegetative structure, such as a stem or root?

- A) Sporulation
- B) Germination
- C) Vegetative propagation
- D) Fertilization

Answer: C) Vegetative propagation

Explanation: Vegetative propagation involves the production of new plants from non-reproductive structures.

35. What is the term for the transfer of pollen from the anther of one flower to the stigma of a different flower on the same plant?

- A) Cross-pollination

- B) Self-pollination
- C) Wind pollination
- D) Animal pollination

Answer: A) Cross-pollination

Explanation: Cross-pollination involves the transfer of pollen between different flowers.

36. Which part of a seedling becomes the primary root?

- A) Hypocotyl
- B) Epicotyl
- C) Radicle
- D) Cotyledon

Answer: C) Radicle

Explanation: The radicle is the embryonic root of a seedling that develops into the primary root.

37. In which structure are male gametophytes produced in seed plants?

- A) Ovule
- B) Anther
- C) Ovary
- D) Stigma

Answer: B) Anther

Explanation: Male gametophytes, or pollen grains, are produced in the anther.

38. What is the main function of the seed coat in a seed?

- A) Nutrient storage
- B) Protection
- C) Photosynthesis
- D) Pollination

Answer: B) Protection

Explanation: The seed coat protects the embryo and seed contents from external environmental factors.

39. In which group of plants do seeds develop inside fruits?

- A) Gymnosperms
- B) Angiosperms
- C) Mosses
- D) Ferns

Answer: B) Angiosperms

Explanation: Angiosperms are flowering plants where seeds develop inside fruits.

40. Which of the following is a method of sexual reproduction in algae?

- A) Conjugation
- B) Fragmentation
- C) Sporulation