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Biology Grade 11 — Chapter 8

Kingdom Plantae

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Independent practice MCQs from the supplied Class 11 Biology notes pack. Total: 50 questions.

A. Important / Main Topics

1. Plants are believed to have evolved from which group of organisms?

(A) Green algae
(B) Red algae
(C) Brown algae
(D) Fungi

Correct Answer: A

Explanation: Plants are believed to have evolved from green algae, sharing characteristics like a cellulose cell wall, chlorophyll a and b, and starch storage.

2. Which of the following is a non-vascular plant?

(A) Fern
(B) Moss
(C) Pine
(D) Rose

Correct Answer: B

Explanation: Bryophytes, such as mosses, are non-vascular plants. They lack true roots, stems, and leaves.

3. Which plant group is commonly known as "naked seed" plants?

(A) Angiosperms
(B) Pteridophytes
(C) Gymnosperms
(D) Bryophytes

Correct Answer: C

Explanation: Gymnosperms are called "naked seed" plants because their seeds are not enclosed within an ovary or fruit.

4. What are the true roots, stems, and leaves of a fern collectively called?

(A) Thallus
(B) Rhizoids
(C) Gametophyte
(D) Fronds

Correct Answer: D

Explanation: Fern leaves are called fronds. Pteridophytes are the first true land plants with well-developed vascular tissues, true roots, stems, and leaves.

5. Which of the following is a primary function of the root?

(A) Anchorage and absorption of water
(B) Photosynthesis
(C) Transport of sugars
(D) Reproduction

Correct Answer: A

Explanation: The root is the underground part of the plant that anchors the plant and absorbs water and minerals from the soil.

6. Which plant tissue is responsible for the transport of water and minerals?

(A) Phloem

(B) Xylem
(C) Parenchyma
(D) Collenchyma

Correct Answer: B

Explanation: Xylem is the vascular tissue that transports water and minerals from roots to leaves.

7. What is the main function of the leaf?

(A) Absorption of water
(B) Support of the plant
(C) Photosynthesis
(D) Storage of food

Correct Answer: C

Explanation: The leaf is the flattened, green, lateral appendage of the stem that is the primary site of photosynthesis.

8. Which plant hormone promotes cell elongation?

(A) Abscisic acid
(B) Cytokinin
(C) Ethylene
(D) Auxin

Correct Answer: D

Explanation: Auxins are plant hormones that promote cell elongation and are involved in various growth processes.

9. What is a directional growth response of a plant towards or away from a stimulus called?

(A) Tropism
(B) Nastic movement
(C) Photoperiodism
(D) Vernalization

Correct Answer: A

Explanation: A tropism is a directional growth response of a plant towards or away from a stimulus.

10. Which type of tropism is a response to light?

(A) Gravitropism
(B) Phototropism
(C) Thigmotropism
(D) Hydrotropism

Correct Answer: B

Explanation: Phototropism is the growth response of a plant towards or away from light.

11. Which plant hormone promotes seed dormancy and stomatal closure?

(A) Auxin
(B) Gibberellin
(C) Abscisic acid
(D) Cytokinin

Correct Answer: C

Explanation: Abscisic acid is a plant hormone that inhibits growth and promotes dormancy and stress responses, including stomatal closure.

12. What are plants called that flower when the day length is longer than a critical length?

(A) Short-day plants
(B) Day-neutral plants
(C) Biennial plants
(D) Long-day plants

Correct Answer: D

Explanation: Long-day plants flower when the day length is longer than a critical length (i.e., when the night length is shorter).

13. What is the primary role of the phloem in a plant?

(A) Transport of sugars and organic nutrients
(B) Transport of water and minerals
(C) Providing structural support
(D) Photosynthesis

Correct Answer: A

Explanation: Phloem is the vascular tissue that transports sugars and organic nutrients from leaves to other parts of the plant.

14. In which part of the flower is pollen produced?

(A) Stigma
(B) Anther
(C) Ovary
(D) Style

Correct Answer: B

Explanation: Pollen grains are produced in the anther, which is part of the stamen (male reproductive organ).

15. What is the transfer of pollen from the anther to the stigma called?

(A) Fertilization
(B) Germination
(C) Pollination
(D) Reproduction

Correct Answer: C

Explanation: Pollination is the transfer of pollen grains from the anther (male part) to the stigma (female part) of a flower.

16. Which group of plants is considered the first to have well-developed vascular tissues?

(A) Bryophytes
(B) Gymnosperms
(C) Angiosperms
(D) Pteridophytes

Correct Answer: D

Explanation: Pteridophytes are the first true land plants with well-developed vascular tissues (xylem and phloem), true roots, stems, and leaves.

17. In bryophytes, the dominant stage in the life cycle is the:

(A) Gametophyte
(B) Sporophyte
(C) Zygote
(D) Seed

Correct Answer: A

Explanation: In bryophytes, the gametophyte is the dominant stage, while the sporophyte is dependent on it.

18. Why is the gametophyte of a fern independent, unlike that of a bryophyte?

(A) It has vascular tissue.
(B) It is photosynthetic and can live independently.
(C) It is larger than the sporophyte.
(D) It is a parasite on the sporophyte.

Correct Answer: B

Explanation: In pteridophytes, the gametophyte (prothallus) is small but independent and photosynthetic.

19. Which characteristic of gymnosperms distinguishes them from angiosperms?

(A) Gymnosperms have enclosed seeds.

(B) Gymnosperms have flowers.
(C) Gymnosperms have naked seeds not enclosed in a fruit.
(D) Gymnosperms are non-vascular.

Correct Answer: C

Explanation: Gymnosperms are "naked seed" plants; their seeds are not enclosed in an ovary or fruit, unlike angiosperms.

20. The plant hormone responsible for promoting cell division and delaying senescence is:

(A) Auxin
(B) Gibberellin
(C) Ethylene
(D) Cytokinin

Correct Answer: D

Explanation: The plant hormone responsible for promoting cell division and delaying senescence is Cytokinin.

21. A plant that flowers only when the night length is shorter than a critical length is a:

(A) Long-day plant
(B) Short-day plant
(C) Day-neutral plant
(D) None of the above

Correct Answer: A

Explanation: Long-day plants flower when the day length is longer than a critical length, which corresponds to a shorter night length.

22. Which of the following is an example of a short-day plant?

(A) Spinach
(B) Chrysanthemum
(C) Radish
(D) Wheat

Correct Answer: B

Explanation: Chrysanthemum is a short-day plant, flowering when days are short and nights are long.

23. What is the primary function of root hairs?

(A) Anchoring the plant
(B) Storing food
(C) Increasing surface area for absorption
(D) Photosynthesis

Correct Answer: C

Explanation: Root hairs greatly increase the surface area of the root for absorption of water and minerals.

24. Which tissue in a leaf is responsible for gas exchange?

(A) Xylem
(B) Phloem
(C) Mesophyll
(D) Stomata

Correct Answer: D

Explanation: Stomata are small openings on the leaf surface that allow gas exchange (CO_2 and O_2) and transpiration.

25. What type of reproduction involves the fusion of gametes?

(A) Sexual reproduction
(B) Asexual reproduction
(C) Vegetative propagation
(D) Fragmentation

Correct Answer: A

Explanation: Sexual reproduction — this correctly answers the question.

B. Less Important / Secondary Topics

26. What is the name of the process by which a seed begins to grow into a new plant?

(A) Germination
(B) Pollination
(C) Fertilization
(D) Dispersal

Correct Answer: A

Explanation: Germination is the process by which a seed begins to grow into a new plant.

27. Which part of the seed stores food for the developing embryo?

(A) Seed coat
(B) Cotyledon
(C) Radicle
(D) Plumule

Correct Answer: B

Explanation: The cotyledon (seed leaf) stores food for the developing embryo in many seeds.

28. A root that grows towards water is exhibiting:

(A) Phototropism
(B) Thigmotropism
(C) Hydrotropism
(D) Gravitropism

Correct Answer: C

Explanation: Hydrotropism is the growth response of a plant towards water.

29. Which plant hormone is a gas that promotes fruit ripening?

(A) Auxin
(B) Gibberellin
(C) Cytokinin
(D) Ethylene

Correct Answer: D

Explanation: Ethylene is a gaseous plant hormone that promotes fruit ripening, senescence, and abscission.

30. What is the primary role of the xylem?

(A) Transport of water and minerals
(B) Transport of sugars
(C) Support of the plant
(D) Photosynthesis

Correct Answer: A

Explanation: Xylem transports water and minerals from roots to leaves.

31. Which of the following is a monocot characteristic?

(A) Two cotyledons
(B) Parallel leaf veins
(C) Netted leaf veins
(D) Taproot system

Correct Answer: B

Explanation: Parallel leaf veins — this correctly answers the question.

32. Which type of plant has a taproot system?

(A) Monocot
(B) Fern
(C) Dicot

(D) Moss

Correct Answer: C

Explanation: Dicots typically have a taproot system, along with two cotyledons and netted leaf veins.

33. What is the function of the ovary in a flower?

(A) Produce pollen
(B) Receive pollen
(C) Attract pollinators
(D) Protect the developing seeds and develop into a fruit

Correct Answer: D

Explanation: After fertilization, the ovary develops into a fruit, which protects the seeds and aids in dispersal.

34. Which of the following is an example of a gymnosperm?

(A) Pine
(B) Rose
(C) Fern
(D) Moss

Correct Answer: A

Explanation: Pine is a conifer, which is a gymnosperm. Gymnosperms have naked seeds produced in cones.

35. In which structure does fertilization occur in angiosperms?

(A) Stigma
(B) Ovule
(C) Style
(D) Anther

Correct Answer: B

Explanation: In angiosperms, fertilization occurs in the ovule, where the male gamete fuses with the egg.

36. Which of the following is a key difference between bryophytes and pteridophytes?

(A) Bryophytes have vascular tissue; pteridophytes do not.
(B) Bryophytes have seeds; pteridophytes do not.
(C) Pteridophytes have true roots, stems, and leaves; bryophytes do not.
(D) Pteridophytes are non-vascular; bryophytes are vascular.

Correct Answer: C

Explanation: Bryophytes lack true roots, stems, and leaves and have no vascular tissue. Pteridophytes are the first true vascular plants with true roots, stems, and leaves.

37. Which of the following best explains why seed plants are better adapted to land than seedless plants?

(A) They have flagellated sperm that require water for fertilization.
(B) They lack vascular tissue.
(C) They are smaller in size.
(D) They have seeds that protect the embryo and allow dispersal without water.

Correct Answer: D

Explanation: Seeds protect the embryo from desiccation and allow dispersal without dependence on water, making seed plants better adapted to land.

38. A plant is exposed to light from one direction. The stem bends towards the light. Which of the following best explains this?

(A) Auxin accumulates on the shaded side, causing cells to elongate more on the shaded side.
(B) Auxin accumulates on the lit side, causing cells to elongate more on the lit side.
(C) Gibberellin accumulates on the shaded side.
(D) The stem grows towards light due to photoperiodism.

Correct Answer: A

Explanation: In phototropism, auxin accumulates on the shaded side of the stem, promoting cell elongation on that side and causing the stem to bend towards the light.

39. Why is the Calvin cycle also called the C3 pathway?

(A) It requires 3 ATP molecules.
(B) It produces a 3-carbon compound (3-PGA) as its first stable product.
(C) It occurs in C3 plants only.
(D) It produces 3 molecules of G3P.

Correct Answer: B

Explanation: The Calvin cycle is also called the C3 pathway because the first s.

40. In a flowering plant, a mutation prevents the formation of the endosperm. What would be the most likely consequence?

(A) The seed would not develop a seed coat.
(B) The flower would not produce pollen.
(C) The developing embryo would lack a food supply.
(D) The plant would be unable to photosynthesize.

Correct Answer: C

Explanation: The developing embryo would lack a food supply. — this correctly answers the question.

41. Which of the following statements about the alternation of generations is correct?

(A) The sporophyte produces gametes by mitosis.
(B) The gametophyte produces spores by meiosis.
(C) Both sporophyte and gametophyte are diploid.
(D) The sporophyte produces spores by meiosis, and the gametophyte produces gametes by mitosis.

Correct Answer: D

Explanation: The sporophyte produces spores by meiosis, and the gametophyte produces gametes by mitosis. — this correctly answers the question.

42. If a long-day plant is exposed to a shorter photoperiod (shorter day, longer night), what will happen?

(A) It will not flower or flowering will be delayed.
(B) It will flower earlier.
(C) It will flower continuously.
(D) It will switch to being a short-day plant.

Correct Answer: A

Explanation: It will not flower or flowering will be delayed. — this correctly answers the question.

43. Which of the following is a primary difference between the root and the stem?

(A) Roots are photosynthetic; stems are not.
(B) Roots are typically underground and absorb water; stems are typically aerial and support leaves.
(C) Roots have nodes and internodes; stems do not.
(D) Roots have chlorophyll; stems do not.

Correct Answer: B

Explanation: The root is the underground part that anchors the plant and absorbs water and minerals. The stem is the aerial part that supports leaves, flowers, and fruits, and conducts water and nutrients.

44. What would happen if the xylem in a plant were blocked?

(A) The plant would be unable to transport sugars.
(B) The plant would be unable to photosynthesize.
(C) The plant would be unable to transport water and minerals from roots to leaves.
(D) The plant would be unable to reproduce.

Correct Answer: C

Explanation: Xylem is responsible for transporting water and minerals from roots to leaves. Blockage would prevent this transport.

45. Which of the following is an example of vegetative propagation?

(A) A seed growing into a new plant
(B) Pollen fertilizing an ovule
(C) A spore growing into a new plant
(D) A potato tuber sprouting into a new plant

Correct Answer: D

Explanation: Vegetative propagation is a type of asexual reproduction where new plants grow from vegetative parts like tubers. A potato tuber is a modified stem that can sprout into a new plant.

46. A plant is observed to have netted leaf veins, two cotyledons, and a taproot system. What type of plant is it?

(A) Dicot
(B) Monocot
(C) Gymnosperm
(D) Bryophyte

Correct Answer: A

Explanation: Dicots are characterized by two cotyledons, netted leaf veins, and a taproot system.

47. What is the main advantage of sexual reproduction over asexual reproduction in plants?

(A) It is faster.
(B) It produces genetically diverse offspring, which may be better adapted to changing environments.
(C) It requires less energy.
(D) It produces identical clones.

Correct Answer: B

Explanation: Sexual reproduction produces genetically diverse offspring due to the fusion of gametes and genetic recombination. This diversity can provide a survival advantage in changing environments.

48. During double fertilization in angiosperms, what does the second sperm cell fuse with?

(A) The egg cell
(B) The synergids
(C) The polar nuclei to form endosperm
(D) The antipodal cells

Correct Answer: C

Explanation: In double fertilization, one sperm fuses with the egg to form the zygote, and the other fuses with two polar nuclei to form the triploid endosperm, which provides nutrition to the embryo.

49. Why is the leaf considered the primary site of photosynthesis?

(A) It is the largest part of the plant.
(B) It has a waxy cuticle.
(C) It is green.
(D) It contains chloroplasts and stomata for gas exchange.

Correct Answer: D

Explanation: The leaf is the primary site of photosynthesis because it contains chloroplasts (which contain chlorophyll for capturing light) and stomata (for gas exchange).

50. A plant's roots are found to be growing upwards instead of downwards. This is likely due to a disruption in:

(A) Gravitropism
(B) Phototropism
(C) Thigmotropism
(D) Hydrotropism

Correct Answer: A

Explanation: Gravitropism (geotropism) is the growth response to gravity. Roots typically show positive gravitropism (growing downwards). Disruption would cause roots to lose this directional growth.