



Botany MCQ for NEET Exam (PDF)

Botany forms a significant part of the NEET exam, contributing to approximately 45% of the Biology section. Questions often focus on topics such as plant physiology, morphology, genetics, and ecology. These questions test candidates' understanding of fundamental and advanced concepts related to plant biology. Accurate knowledge of diagrams, plant processes, and classification systems is essential for scoring well. Preparing with NCERT textbooks and practicing with past NEET papers helps in mastering the botany section effectively. This is a Botany MCQ for NEET Exam Preparation 2025 with Answer Key. You can download the MCQ as PDF. Link provided below the post.

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(1) Which of the following is the primary function of the plant pigment phytochrome?

- (a) Absorption of light energy for photosynthesis
- (b) Regulation of flowering based on light cycles
- (c) Transport of water through xylem
- (d) Activation of stomatal movement

Answer: (b)

Phytochrome is responsible for regulating flowering in plants by detecting changes in light, especially the red and far-red wavelengths.

(2) What type of cell division is responsible for the formation of gametes in plants?

- (a) Mitosis
- (b) Meiosis
- (c) Binary fission
- (d) Amitosis

Answer: (b)

Meiosis is responsible for reducing the chromosome number and forming haploid gametes in plants.

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(3) Which of the following is characteristic of C₄ photosynthesis?

- (a) Only occurs in monocots
- (b) The fixation of carbon occurs in the mesophyll cells
- (c) It occurs in the bundle sheath cells
- (d) It involves an enzyme called RuBisCO in the initial step

Answer: (c)

In C₄ photosynthesis, carbon fixation occurs in the bundle sheath cells, separating the initial fixation from the Calvin cycle.

(4) Which plant family is characterized by the presence of alkaloids and is known for containing many medicinal plants?

- (a) Solanaceae
- (b) Lamiaceae
- (c) Rosaceae
- (d) Fabaceae

Answer: (a)

The Solanaceae family contains many medicinal plants, like nicotine and atropine, due to the presence of alkaloids.

(5) The "alternation of generations" in plants refers to:

- (a) The transition between vegetative and reproductive phases
- (b) The switching between sexual and asexual reproduction
- (c) The alternation between haploid gametophyte and diploid sporophyte generations
- (d) The development of root and shoot systems

Answer: (c)

Alternation of generations involves the alternation between the haploid gametophyte generation and the diploid sporophyte generation in plants.

(6) In which part of the plant does the Calvin cycle occur?

- (a) Cytoplasm
- (b) Chloroplast stroma
- (c) Mitochondria
- (d) Vacuole

Answer: (b)

The Calvin cycle takes place in the stroma of the chloroplast, where carbon fixation occurs during photosynthesis.

(7) The term "double fertilization" in angiosperms refers to:

- (a) Fertilization of two eggs by two sperm cells
- (b) Fertilization involving two sperm cells, one fuses with the egg and the other with two polar nuclei
- (c) Fertilization of one egg by multiple sperm cells
- (d) Fertilization of a diploid egg

Answer: (b)

Double fertilization in angiosperms involves one sperm fusing with the egg and the other fusing with the two polar nuclei to form the endosperm.

(8) Which of the following is NOT a major plant hormone involved in regulating plant growth?

- (a) Auxins
- (b) Cytokinins
- (c) Ethylene
- (d) Serotonin

Answer: (d)

Serotonin is not a plant hormone; it is a neurotransmitter in animals, while auxins, cytokinins, and ethylene are all involved in plant growth regulation.

(9) The 'abc model' in plant development describes the role of:

- (a) Seed germination in flowering plants
- (b) The genetic basis of flower development
- (c) Plant responses to environmental stresses
- (d) The regulation of leaf senescence

Answer: (b)

The ABC model explains the genetic regulation of flower organ identity, where genes A, B, and C determine the formation of sepals, petals, stamens, and carpels.

(10) Which of the following is NOT an example of a plant secondary metabolite?

- (a) Alkaloids
- (b) Tannins
- (c) Starch
- (d) Terpenoids

Answer: (c)

Starch is a primary metabolite, while alkaloids, tannins, and terpenoids are secondary metabolites involved in plant defense and other functions.

(11) In a typical dicot plant, the vascular bundles in the stem are arranged:

- (a) In a scattered manner
- (b) In a ring formation
- (c) In a spiral pattern
- (d) In a single line

Answer: (b)

In dicot plants, vascular bundles are arranged in a ring formation in the stem, contrasting with the scattered arrangement in monocots.

(12) The term "stomatal conductance" refers to:

- (a) The amount of water absorbed by the plant
- (b) The movement of gases in and out of the leaf
- (c) The rate of photosynthesis
- (d) The movement of water through the plant

Answer: (b)

Stomatal conductance refers to the rate at which gases such as CO₂ and water vapor pass through the stomata of the plant.

(13) Which of the following is the main cause of the wilting of plants?

- (a) Excessive heat
- (b) Excessive water loss through transpiration

- (c) Lack of photosynthesis
- (d) Lack of chlorophyll

Answer: (b)

Wilting occurs when the plant loses more water through transpiration than it can absorb through the roots, causing turgor pressure to drop.

(14) The term "xylem sap" refers to:

- (a) The liquid produced by the roots
- (b) The water and mineral solution transported in the xylem
- (c) The solution of sugars transported in the phloem
- (d) The solution of auxins transported in the plant

Answer: (b)

Xylem sap is a solution primarily consisting of water and minerals that are transported upward from the roots to other parts of the plant.

(15) Which enzyme is primarily responsible for carbon fixation in C₃ plants?

- (a) PEP carboxylase
- (b) Ribulose biphosphate carboxylase (RuBisCO)
- (c) Phosphofructokinase
- (d) Hexokinase

Answer: (b)

RuBisCO is the enzyme responsible for catalyzing the fixation of carbon dioxide in the Calvin cycle of C₃ plants.

(16) Which of the following is a key characteristic of mycorrhizal fungi in plants?

- (a) They help in nitrogen fixation
- (b) They provide nutrients like phosphates to the plant
- (c) They produce hormones that promote plant growth
- (d) They are pathogens that cause plant diseases

Answer: (b)

Mycorrhizal fungi form symbiotic relationships with plants, helping them absorb essential nutrients like phosphates from the soil.

(17) Which of the following structures is responsible for the formation of secondary growth in plants?

- (a) Apical meristem
- (b) Vascular cambium
- (c) Root cap
- (d) Leaf primordium

Answer: (b)

The vascular cambium is responsible for secondary growth, which results in an increase in girth in dicots and gymnosperms.

(18) The plant hormone abscisic acid is primarily involved in:

- (a) Promoting cell division
- (b) Stimulating seed germination
- (c) Inducing stomatal closure during water stress
- (d) Promoting flowering



Answer: (c)

Abscisic acid helps plants conserve water during stress by promoting the closure of stomata to reduce water loss.

(19) Which of the following is a feature of a plant's vascular system?

- (a) Photosynthesis
- (b) Transpiration
- (c) Transport of nutrients and water
- (d) Formation of seeds

Answer: (c)

The vascular system, including xylem and phloem, is responsible for the transport of water, nutrients, and sugars within the plant.

(20) The key difference between monocots and dicots is in the:

- (a) Number of cotyledons
- (b) Type of flower structure
- (c) Arrangement of vascular tissue
- (d) Method of pollination

Answer: (a)

Monocots have one cotyledon, whereas dicots have two cotyledons in their seeds, which is the primary distinction.

(21) The process by which plants exchange gases with the environment is known as:

- (a) Transpiration
- (b) Photosynthesis
- (c) Respiration
- (d) Stomatal conductance

Answer: (c)

Respiration is the process through which plants take in oxygen and release carbon dioxide, usually occurring in the mitochondria.

(22) Which of the following is a characteristic of the phloem tissue?

- (a) Transports water and minerals
- (b) Contains sieve tubes and companion cells

- (c) Contains xylem vessels
- (d) Does not contain living cells

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Answer: (b)

Phloem consists of living cells like sieve tubes and companion cells, which are involved in the transport of sugars and other organic molecules.

(23) The seedless vascular plants such as ferns reproduce by:

- (a) Binary fission
- (b) Formation of spores
- (c) Pollination
- (d) Vegetative propagation

Answer: (b)

Seedless vascular plants like ferns reproduce through spores, which are dispersed to form new plants.

(24) The movement of water in plants against gravity is facilitated primarily by:

- (a) Active transport
- (b) Osmosis
- (c) Cohesion and adhesion properties of water
- (d) Photosynthesis

Answer: (c)

Cohesion and adhesion properties of water, along with capillary action, allow for the upward movement of water through xylem vessels.

(25) Which of the following is involved in the process of nitrogen fixation in plants?

- (a) Chloroplasts
- (b) Rhizobium bacteria in legume root nodules

- (c) Mitochondria
- (d) Xylem vessels

Answer: (b)

Rhizobium bacteria in the root nodules of legumes convert atmospheric nitrogen into a form that plants can use for growth.

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