Botany Questions for M.Sc. Entrance Exam

(1). Which of the following is the main function of chlorophyll in plants?

(a) Absorption of water
(b) Synthesis of proteins
(c) Absorption of light energy for photosynthesis
(d) Transport of nutrients

Answer: (c)

Chlorophyll is essential for absorbing light energy, which is then used in the process of photosynthesis.

(2) The process of photosynthesis takes place in which part of the plant cell?

(a) Mitochondria
(b) Chloroplast
(c) Nucleus
(d) Ribosome

Answer: (b)

Photosynthesis occurs in the chloroplasts, where chlorophyll absorbs light energy.

(3) The primary role of auxins in plants is to:

(a) Promote cell division

(b) Promote flowering

(c) Control plant growth direction

(d) Stimulate fruit ripening

Answer: (c)

Auxins primarily regulate plant growth by promoting elongation of cells, especially in the shoot tips.

(4) The term 'xylem' refers to:

(a) Tissue responsible for photosynthesis

(b) Tissue responsible for the transport of water

(c) Tissue responsible for the transport of food

(d) Tissue responsible for cell division

Answer: (b)

Xylem is responsible for transporting water and minerals from the roots to other parts of the plant.

(5) Which of the following is NOT a type of meristematic tissue?

(a) Apical meristem

(b) Lateral meristem

(c) Intercalary meristem

(d) Collenchyma

Answer: (d)

Collenchyma is a type of permanent tissue, not meristematic tissue, and is involved in structural support.

(6) The process by which plants lose water through their leaves is called:

(a) Respiration

(b) Evaporation

(c) Transpiration

(d) Translocation

Answer: (c)

Transpiration is the loss of water vapor through the stomata in the leaves.

(7) In which part of the plant does cellular respiration mainly occur?

(a) Roots

(b) Stem

(c) Leaves

(d) All plant cells

Answer: (d)

Cellular respiration occurs in all plant cells, primarily in the mitochondria.

(8) The term 'angiosperms' refers to plants that:

(a) Have seeds exposed on cones

(b) Are non-flowering plants

(c) Have flowers and produce seeds enclosed in fruit

(d) Are vascular but lack seeds

Answer: (c)

Angiosperms are flowering plants whose seeds are enclosed in a fruit.

(9) Which of the following is a characteristic feature of gymnosperms?

(a) They have enclosed seeds

(b) They lack vascular tissue

(c) They have cones that contain exposed seeds

(d) They are non-vascular plants

Answer: (c)

Gymnosperms are characterized by seeds that are exposed, typically in cones.

(10) Which plant hormone is responsible for fruit ripening?

(a) Auxins

(b) Cytokinins

(c) Abscisic acid

(d) Ethylene

Answer: (d)

Ethylene is the hormone responsible for regulating fruit ripening.

(11) What is the function of phloem in plants?

(a) Transport of water

(b) Transport of food

(c) Photosynthesis

(d) Support of plant structure

Answer: (b)

Phloem is responsible for transporting food, primarily sugars, throughout the plant.

(12) The process of nitrogen fixation in plants is carried out by:

(a) Chloroplasts

(b) Root nodules containing Rhizobium bacteria

(c) Mitochondria

(d) Fungi in the soil

Answer: (b)

Rhizobium bacteria, found in root nodules, fix nitrogen from the air into a usable form for plants.

(13) In which of the following does photoperiodism play a key role?

(a) Seed germination
(b) Flowering
(c) Growth of roots
(d) Water absorption

Answer: (b)

Photoperiodism influences the flowering of plants based on the length of day and night.

(14) The largest known flower in the world is produced by:

(a) Rafflesia arnoldii
(b) Amorphophallus titanum
(c) Lotus
(d) Sunflower

Answer: (a)

Rafflesia arnoldii produces the largest single flower, measuring up to 1 meter in diameter.

(15) Which of the following is the primary function of stomata in plants?

(a) Absorb nutrients
(b) Exchange gases
(c) Provide structural support
(d) Absorb water

Answer: (b)

Stomata are responsible for gas exchange, including the uptake of CO2 and the release of O2 and water vapor.

(16) Which of the following is a characteristic of dicot plants?

(a) Single cotyledon

(b) Parallel venation in leaves

(c) Vascular bundles arranged in a ring

(d) Presence of fibrous root system

Answer: (c)

Dicots typically have vascular bundles arranged in a ring, which distinguishes them from monocots.

(17) Which process occurs in the mitochondria of plant cells?

(a) Photosynthesis

(b) Transpiration

(c) Cellular respiration

(d) Germination

Answer: (c)

Cellular respiration, which generates ATP, occurs in the mitochondria.

(18) Which of the following is a byproduct of photosynthesis?

(a) Oxygen

(b) Nitrogen

(c) Carbon dioxide

(d) Water

Answer: (a)

Oxygen is produced as a byproduct during the process of photosynthesis in plants.

(19) Which part of the flower is responsible for producing pollen?

(a) Ovary

(b) Anther

(c) Stigma

(d) Sepal

Answer: (b)

The anther produces pollen, which contains male gametes.

(20) What is the main difference between C3 and C4 photosynthesis?

(a) The type of pigment used
(b) The way carbon dioxide is fixed
(c) The location of the stomata
(d) The number of chloroplasts

Answer: (b)

C4 plants fix carbon dioxide differently, using a more efficient process for capturing CO2 in hot environments.

(21) Which of the following is not a part of the plant's vascular system?

(a) Xylem
(b) Phloem
(c) Cambium
(d) Epidermis

Answer: (d)

The epidermis is not part of the vascular system, which is made up of xylem and phloem.

(22) Which of the following nutrients is essential for the synthesis of chlorophyll in plants?

(a) Nitrogen
(b) Potassium

(c) Magnesium

(d) Phosphorus

Answer: (c)

Magnesium is a central component of chlorophyll, essential for photosynthesis.

(23) The structure of the seed is composed of all except:

(a) Cotyledon

(b) Embryo

(c) Seed coat

(d) Fruit

Answer: (d)

The fruit is not a part of the seed structure; it develops from the ovary after fertilization.

(24) Which of the following is a type of asexual reproduction in plants?

(a) Pollination

(b) Seed formation

(c) Budding

(d) Fertilization

Answer: (c)

Budding is an asexual method of reproduction where new individuals form from a bud on the parent plant.