

Botany MCQ Practice

+2 1st Year (Class XI)

52 questions · 10 chapters · answers with explanations

How to use: attempt each chapter's questions without looking, then check the Answer Key at the end. Read the one-line explanation for every question you got wrong, and revise that topic in your notes.

The Living World

1. The scientific name of an organism has two parts. This system is called
(a) trinomial nomenclature (b) binomial nomenclature
(c) taxonomy (d) systematics
2. The basic unit of classification is
(a) genus (b) species
(c) family (d) order
3. Which is the correct order of taxonomic categories (from lower to higher)?
(a) species → genus → family → order (b) genus → species → order → family
(c) family → genus → species (d) order → family → class → genus
4. In the scientific name *Mangifera indica*, "indica" is the
(a) genus (b) specific epithet
(c) family (d) author
5. A herbarium is a
(a) garden of live plants
(b) store of pressed and dried plant specimens
(c) zoo
(d) museum of animals

Biological Classification

6. The five-kingdom classification was proposed by
(a) Linnaeus (b) R.H. Whittaker
(c) Darwin (d) Aristotle
7. Bacteria belong to the kingdom
(a) Protista (b) Monera
(c) Fungi (d) Plantae
8. Viruses contain
(a) both DNA and RNA (b) either DNA or RNA
(c) no nucleic acid (d) only protein and lipid
9. Lichens are a symbiotic association between
(a) algae and bacteria (b) algae and fungi
(c) fungi and plant roots (d) bacteria and fungi

10. The cell wall of fungi is made of
 (a) cellulose (b) chitin
 (c) peptidoglycan (d) lignin
11. Diatoms have cell walls made of
 (a) cellulose (b) silica
 (c) chitin (d) calcium

Plant Kingdom

12. Which group is called the "amphibians of the plant kingdom"?
 (a) algae (b) bryophytes
 (c) pteridophytes (d) gymnosperms
13. The first terrestrial plants with vascular tissue are
 (a) bryophytes (b) pteridophytes
 (c) algae (d) angiosperms
14. In gymnosperms, the seeds are
 (a) enclosed in a fruit (b) naked (not covered by an ovary)
 (c) absent (d) formed in spores
15. The main plant body of a moss is the
 (a) sporophyte (b) gametophyte
 (c) prothallus (d) protonema only
16. Agar is obtained from
 (a) green algae (b) red algae
 (c) brown algae (d) fungi

Morphology of Flowering Plants

17. Tap roots develop from the
 (a) radicle (b) plumule
 (c) stem nodes (d) leaves
18. The pneumatophores of mangroves help in
 (a) support (b) respiration
 (c) storing food (d) climbing
19. Potato is a modified
 (a) root (b) stem
 (c) leaf (d) flower
20. A flower with both stamens and pistil is called
 (a) unisexual (b) bisexual
 (c) sterile (d) naked
21. The placentation in mustard is
 (a) marginal (b) parietal
 (c) axile (d) free central
22. Leaves arranged two at each node, opposite each other, show
 (a) alternate phyllotaxy (b) opposite phyllotaxy
 (c) whorled phyllotaxy (d) spiral phyllotaxy

Anatomy of Flowering Plants

23. Which tissue helps in the increase of girth (secondary growth)?
(a) apical meristem (b) lateral meristem (cambium)
(c) intercalary meristem (d) permanent tissue
24. Xylem conducts
(a) food (b) water and minerals
(c) hormones only (d) gases
25. Vascular bundles in a monocot stem are
(a) arranged in a ring (b) scattered
(c) absent (d) in the pith only
26. Annual rings in a tree trunk are formed due to
(a) spring and autumn wood (b) cork
(c) pith (d) phloem
27. Guard cells surround the
(a) lenticel (b) stoma
(c) root hair (d) vascular bundle

Cell: The Unit of Life

28. The cell theory was given by
(a) Schleiden and Schwann (b) Watson and Crick
(c) Robert Hooke (d) Mendel
29. The powerhouse of the cell is the
(a) ribosome (b) mitochondrion
(c) Golgi body (d) nucleus
30. Ribosomes of prokaryotes are of the type
(a) 80S (b) 70S
(c) 60S (d) 90S
31. Which organelle is called "suicidal bags"?
(a) lysosome (b) vacuole
(c) plastid (d) centrosome
32. The fluid mosaic model of the cell membrane was proposed by
(a) Singer and Nicolson (b) Robertson
(c) Hooke (d) Brown
33. Chloroplasts are found in
(a) animal cells (b) green plant cells
(c) bacteria (d) fungi

Biomolecules

34. Enzymes are mostly
(a) carbohydrates (b) proteins
(c) lipids (d) nucleic acids

35. Starch is a polymer of
 (a) fructose (b) glucose
 (c) amino acids (d) fatty acids
36. The bond between two amino acids is a
 (a) glycosidic bond (b) peptide bond
 (c) ester bond (d) hydrogen bond
37. A competitive inhibitor of an enzyme
 (a) resembles the substrate (b) destroys the enzyme
 (c) is always a metal (d) increases the reaction rate
38. The most abundant protein in the whole biosphere is
 (a) haemoglobin (b) RuBisCO
 (c) collagen (d) insulin

Photosynthesis in Higher Plants

39. Oxygen released in photosynthesis comes from
 (a) CO_2 (b) water
 (c) glucose (d) chlorophyll
40. The light reaction occurs in the
 (a) stroma (b) grana (thylakoids)
 (c) cytoplasm (d) mitochondria
41. The first stable product of the C_3 cycle is
 (a) oxaloacetic acid (b) 3-phosphoglyceric acid (PGA)
 (c) glucose (d) malic acid
42. Kranz anatomy is found in
 (a) C_3 plants (b) C_4 plants
 (c) CAM plants only (d) algae
43. Photorespiration occurs mainly in
 (a) C_4 plants (b) C_3 plants
 (c) all plants equally (d) bacteria

Respiration in Plants

44. Glycolysis takes place in the
 (a) mitochondria (b) cytoplasm
 (c) chloroplast (d) nucleus
45. The Krebs cycle occurs in the
 (a) cytoplasm (b) mitochondrial matrix
 (c) ribosomes (d) Golgi body
46. The respiratory quotient (RQ) of carbohydrates is
 (a) 0.7 (b) 1
 (c) 0.9 (d) infinite
47. In anaerobic respiration, yeast produces
 (a) lactic acid (b) ethanol and CO_2
 (c) only water (d) glucose

Plant Growth and Development

48. Which hormone promotes cell elongation and apical dominance?
- | | |
|-------------------|---------------|
| (a) auxin | (b) ethylene |
| (c) abscisic acid | (d) cytokinin |
49. Which plant hormone is a gas?
- | | |
|--------------|-----------------|
| (a) auxin | (b) gibberellin |
| (c) ethylene | (d) cytokinin |
50. The "stress hormone" of plants is
- | | |
|-----------------|-------------------------|
| (a) auxin | (b) abscisic acid (ABA) |
| (c) gibberellin | (d) ethylene |
51. Bolting (sudden stem elongation before flowering) is caused by
- | | |
|-----------|-----------------|
| (a) auxin | (b) gibberellin |
| (c) ABA | (d) ethylene |
52. Plants that need a long period of cold to flower show
- | | |
|--------------------|-------------------|
| (a) photoperiodism | (b) vernalisation |
| (c) phototropism | (d) senescence |

Answer Key with Explanations

The Living World

1. (b) binomial nomenclature — Proposed by Carolus Linnaeus: genus + species.
2. (b) species — Members of a species can interbreed.
3. (a) species → genus → family → order — Species → genus → family → order → class → phylum/division → kingdom.
4. (b) specific epithet — The first word is the genus, the second the species (specific epithet).
5. (b) store of pressed and dried plant specimens — Specimens are mounted on sheets with labels.

Biological Classification

6. (b) R.H. Whittaker — Monera, Protista, Fungi, Plantae, Animalia (1969).
7. (b) Monera — Monera are prokaryotes.
8. (b) either DNA or RNA — A virus has one type of nucleic acid in a protein coat.
9. (b) algae and fungi — The alga makes food; the fungus gives shelter and water.
10. (b) chitin — Chitin is a polysaccharide also found in insects.
11. (b) silica — Their walls pile up as diatomaceous earth.

Plant Kingdom

12. (b) bryophytes — They live on land but need water for fertilisation.
13. (b) pteridophytes — Ferns and their relatives have xylem and phloem.
14. (b) naked (not covered by an ovary) — Gymnos = naked, sperma = seed. Example: Cycas, Pinus.
15. (b) gametophyte — In bryophytes the gametophyte is dominant.
16. (b) red algae — From Gelidium and Gracilaria.

Morphology of Flowering Plants

17. (a) radicle — Dicots usually have a tap root system.
18. (b) respiration — They are roots that grow upward to get oxygen.
19. (b) stem — Its "eyes" are nodes with buds.
20. (b) bisexual — Example: mustard, hibiscus.
21. (b) parietal — Ovules are on the inner wall of the ovary.
22. (b) opposite phyllotaxy — Example: Calotropis, guava.

Anatomy of Flowering Plants

23. (b) lateral meristem (cambium) — Vascular cambium and cork cambium form new cells sideways.
24. (b) water and minerals — Phloem conducts food.
25. (b) scattered — Dicot stems have them in a ring.
26. (a) spring and autumn wood — Each pair of light (spring) and dark (autumn) wood is one year's growth.
27. (b) stoma — They open and close the stomatal pore.

Cell: The Unit of Life

28. (a) Schleiden and Schwann — Rudolf Virchow later added "cells arise from pre-existing cells".
29. (b) mitochondrion — It makes ATP by aerobic respiration.
30. (b) 70S — Eukaryotes have 80S ribosomes in the cytoplasm.
31. (a) lysosome — They contain digestive enzymes.
32. (a) Singer and Nicolson — Proteins float in a lipid bilayer (1972).
33. (b) green plant cells — They carry out photosynthesis.

Biomolecules

34. (b) proteins — Some RNAs (ribozymes) also act as enzymes.
35. (b) glucose — Cellulose and glycogen are also glucose polymers.
36. (b) peptide bond — Formed by removal of water.
37. (a) resembles the substrate — Malonate inhibits succinic dehydrogenase this way.
38. (b) RuBisCO — It fixes CO₂ in photosynthesis.

Photosynthesis in Higher Plants

39. (b) water — Water is split during the light reaction (photolysis).
40. (b) grana (thylakoids) — The dark reaction (Calvin cycle) occurs in the stroma.
41. (b) 3-phosphoglyceric acid (PGA) — C_4 plants first form OAA.
42. (b) C_4 plants — Example: maize, sugarcane.
43. (b) C_3 plants — RuBisCO binds O_2 instead of CO_2 .

Respiration in Plants

44. (b) cytoplasm — Glucose is broken into two pyruvic acid molecules.
45. (b) mitochondrial matrix — It is also called the TCA or citric acid cycle.
46. (b) 1 — Equal volumes of CO_2 released and O_2 used.
47. (b) ethanol and CO_2 — This is alcoholic fermentation.

Plant Growth and Development

48. (a) auxin — Auxin (IAA) is made at the shoot tip.
49. (c) ethylene — It ripens fruits.
50. (b) abscisic acid (ABA) — It closes stomata during drought.
51. (b) gibberellin — Gibberellins also break seed dormancy.
52. (b) vernalisation — Example: winter varieties of wheat.