

Chapter 7

Plant Kingdom

I. Choose the correct answers

Question 1.

Solanum trilobatum is the binomial name of Thoothuvalai. Here the word 'Solanum' refers to

- (a) Species
- (b) Genus
- (c) Class
- (d) Orders

Answer:

- (b) Genus

Question 2.

..... is an example for colonial form of algae.

- (a) *Oscillatoria*
- (b) *Nostoc*
- (c) *Volvox*
- (d) *Chlorella*

Answer:

- (c) *Volvox*

Question 3.

Floridean starch is a reserve food material of

- (a) *Chlorophyceae*
- (b) *Phaeophyceae*
- (c) *Rhodophyceae*
- (d) *Cyanophyceae*

Answer:

- (c) *Rhodophyceae*

Question 4.

The edible mushroom is

- (a) *Polyporus*
- (b) *Agaricus*
- (c) *Penicillium*
- (d) *Aspergillus*

Answer:

- (b) *Agaricus*

Question 5.

Soil erosion is prevented by plants.

- (a) Algae
- (b) Fungi
- (c) Bryophytes
- (d) Pteridophytes

Answer:

- (c) Bryophytes

Question 6.

The first vascular cryptogams in land plants are

- (a) Bryophytes
- (b) Pteridophytes
- (c) Gymnosperm
- (d) Angiosperm

Answer:

- (b) Pteridophytes

Question 7.

The well – developed sporophytic plant body is seen in

- (a) Bryophytes
- (b) Pteridophytes
- (c) Gymnosperms
- (d) Angiosperms

Answer:

- (c) Gymnosperms

Question 8.

Binominal Nomenclature was first introduced in the year of

- (a) 1970
- (b) 1975
- (c) 1978
- (d) 1623

Answer:

- (d) 1623

Question 9.

Penicillin is an antibiotic, which is extracted from

- (a) Algae
- (b) Fungi
- (c) Bryophytes
- (d) Pteridophytes

Answer:

- (b) Fungi

II. Fill in the blanks

1. The word 'Taxonomy' is derived from
2. Binomial Nomenclature was first introduced by
3. The book "Genera Plantarum" was written by
4. Monocotyledon seeds bear only cotyledon.
5. Brown algae belongs to class.
6. Agar Agar is obtained from algae.
7. The reserve food material of fungi are and
8. The first true land plant is
9. Xylem and phloem are absent in plants.
10. Reticulate venation is present in plants.

Answer:

1. Greek
2. Gaspard Bauhin
3. Bentham and Hooker
4. One
5. Phaeophyceae
6. Red
7. Glycogen, oil
8. Pteridophyte
9. Bryophyte
10. Dicot

III. True or False

Question 1.

In polypetalae, the petals are free.

Answer:

True.

Question 2.

Binomial name should contain more than two words.

Answer:

False.

Correct statement:

Binomial name should contain two words.

Question 3.

Artificial system of classification is based on the vegetative characters of the plant.

Answer:

False.

Correct statement:

Artificial system of classification is based on the morphological characters of the plant.

Question 4.

Cell wall of fungi is made up of chitin.

Answer:

True.

Question 5.

Pinus is a closed seeded plant.

Answer:

False.

Correct statement:

Pinus is a naked seeded plant.

Question 6.

All bryophytes are hydrophytes.

Answer:

False.

Correct statement:

All bryophytes are amphibians.

Question 7.

Dicotyledons have well developed characters than the monocotyledons.

Answer:

False.

Correct statement:

Monocotyledons have well developed characters than the dicotyledons.

Question 8.

Mosses are the well developed plant in bryophytes.

Answer:

True.

Question 9.

The dominant phase of the bryophytes is sporophytes.

Answer:

False.

Correct statement:

The dominant phase of the bryophytes is gametophyte.

Question 10.

The dominant phase of the pteridophytes is diploid(2n).

Answer:

True.

Question 11.

Seeds of angiosperm are produced inside the ovary.

Answer:

True.

Question 12.

In gymnosperms ovules are developed from the flowers.

Answer:

False.

Correct statement:

In gymnosperms, ovules are developed from the seeds.

IV. Match the following

Question 1.

Which of the following pairs are in correct?

(a)	Laminaria	–	Iodins
(b)	Nostoc	–	N ₂ fixation
(c)	Polysiphonia	–	Green algae
(d)	Rhodophyceae	–	Fucoxanthin

(a) a, b, c

(b) c, d

(c) a, c, d

(d) a, b, c, d

Answer:

(b) c, d

Question 2.

Find out the correct pairs:

(a)	Phyllanthus amarus	–	Euphorbiaceae
(b)	Solanum trilobatum	–	Solanaceae
(c)	Acalypha indica .	–	Malvaceae
(d)	Aegle marmelos	–	Rutaceae

(a) a, b,

(b) c, d

(c) a, b, c,

(d) a, b, d

Answer:

(b) a,b, d

Question 3.

Which of the following characters are not suitable to angiosperm?

- (a) Reticulate / parallel venation, closed seeded plants, sieve tubes are present in phloem.
- (b) Seeds are open, ovary is not present, gametes are produced in cones.
- (c) Tracheids are the conducting cells, companion cells not are present in phloem.
- (d) Trimerous or tetramerous, closed seed, seed with seed coat, bears fruit.

(a) a, b

(b) b, c

(c) e, d

(d) a, d

Answer:

(b) b, c

Question 4.

Which of the following sequences are correct

- (a) In Bryophytes – Gametophytes – Sex organ – Gamete fusion – Zygote – Spore mother cell – spore – Thallus.
- (b) In Angiosperm – pollination – fertilization – zygote – new plant.
- (c) In Gymnosperm – male cone, and female cone – microspore and megaspore – Zygote – new sporophytes plant.
- (d) In pteridophytes – pollination by wind, fertilization in the presence of water – zygote prothallus, new plant.

(1) a, b, c

(2) a, b

(3) c, d

(4) b, d

Answer:

(2) a, b

Question 5.

Match column I with coloumn II

Column I		Column II	
A	Penicillium chrysogenum	1.	Blast disease of paddy.
B	Gingko biloba	2.	Ornamental plants
C	Araucaria bidwilli	3.	Athlete foot.
D	Tineapedis	4.	Penicillin
E	Pyricularia oryzae	5.	Living fossil

- (a) A – 4, B – 5, C – 2, D – 3, E – 1
- (b) A – 4, B – 5, G – 1, D – 2, E – 1
- (c) A – 3, B – 2, C – 4, D – 5, E – 1
- (d) A – 4, B – 2, C – 1, D – 5, E – 3

Answer:

- (a) A – 4, B – 5, C – 2, D – 3, E – 1

V. Answer the following Questions shortly

Question 1.

Define Thallus.

Answer:

Thallus refers to a plant body which is not differentiated into roots, stem and leaves.

Example: Algae.

Question 2.

What is mean by Binomial Nomenclature? Give example.

Answer:

The naming of an organisms with two words are known as Binomial Nomenclature. For example, the binomial name of mango is *Mangifera indica*. Here the first word *Mangifera* refers to the genus name and the second word *indica* to the species name.

Question 3.

Write any two points of dicotyledons.

Answer:

1. Seed has two cotyledons.
2. Plants have tap root system, leaves with reticulate venation.
3. Flowers are tetramerous or pentamerous. Calyx and corolla are well differentiated.
4. Pollination occurs mostly by insects.

Question 4.

Seeds of gymnosperm plants are naked. Why?

Answer:

In gymnosperms, ovules are borne on megasporophylls and no flowers are produced. Therefore the seeds are described as naked. They are open seed bearing plants.

Question 5.

Write any two economic importance of fungi.

Answer:

1. Mushrooms contain rich protein, minerals and are edible. Example: *Agaricus*.
2. The antibiotic penicillin is got from the fungus *penicillium notatum* other antibiotics like gentamycin, erythromycin are also got from fungi.

VI. Answers the following Questions in brief

Question 1.

Write short notes about natural system of classification.

Answer:

1. In this system, plants are classified on the basis of several characters. Bentham and Hooker's classification is an example of Natural System of Classification.
2. This system of classification is based on morphological.
3. This classification is widely used in many Herbaria and botanical gardens all over the world.
4. Bentham and Hooker published their Natural system of Classification in their book named Genera Plantarum in 3 volumes.

Question 2.

Write any three economic importance of algae.

Answer:

1. Agriculture : Some of the blue green algae are essential for the fixing of atmospheric nitrogen into the soil, which increases the fertility of the soil, example Nostoc, Anabaena.
2. Agar Agar : Agar Agar is extracted from some red algae, namely Gelidium, Gracillaria, etc., which is used to prepare growth medium in laboratories.
3. Iodine : Iodine is obtained from brown algae like Laminaria (kelp).

Question 3.

Write the differences between algae and fungi.

Answer:

Algae:

- Algae are autotrophs.
- It has pigments.
- Reserve food material is starch.
- Some algae are prokaryotic in nature, example: Cyanobacteria (Nostac, Anabena)

Fungi:

- Fungi are heterotrophs.
- It has no pigments
- Reserve food materials are glycogen and oil.
- All are eukaryotic nature, example: Agaricus

Question 4.

How many classes are there in Bryophytes? What are they?

Answer:

Bryophytes are classified into 3 classes.

- Class I: Hepaticae (Liverworts) Example: Riccia.
- Class II: Anthocerotae (Hornworts) Example : Anthoceros
- Class III : Musci (Mosses) Example: Funaria

Question 5.

Write any four characters of pteridophytes.

Answer:

1. The main plant body is sporophytes, which is the dominant phase, differentiated into true root, stem and leaves.
2. Sporophytes reproduce by means of spores. Spores are produced in sporangium.
3. The sporangia bearing leaves are called sporophyll.
4. Most of the plants produce only one type of spore, it may be either microspore or megaspore (homosporous).

VII. Answers the following Questions in detail

Question 1.

Draw the outline of Bentham and Hookers system classification.

Answer:

Outline of Bentham and Hooker's system of classification:

Seeded plants (Division):

(i) Dicotyledonae (Class I)

1. Polypetalae (Sub class I)

- Thalamiflorae
- Disciflorae
- Caliciflorae

2. Synpetalae (Sub class II)

- Inferae
- Heteromerae
- Bicarpellatae

3. Monochlamydeae (Sub class III)

- Series 8 Family 36)

(ii) Gymnospermae (Class II) (3 families)

(iii) Monocotyledonae (Class III) (Series 8 Family 36)

Question 2.

Write any five differences between monocot and dicot plants.

Answer:

Monocots:

- Seeds have a single cotyledon.
- Leaves show parallel venation
- They have fibrous root system.
- Flowers are trimerous. Example : Paddy

Dicots:

- Seeds have two cotyledons.
- Leaves show reticulate venation.
- They have tap root system.
- Flowers are tetra or pentamerous. Example : Mango

Question 3.

Write differences between Gymnosperm and Angiosperm.

Answer:

Gymnosperm:

- They reproduce by production of cones.
- Pollination is by wind.
- They are naked seed bearing plants.
- The xylem lacks vessels and phloem lacks sieve tubes.
- They have two phases in its life cycle. (Sporophyte & Gametophyte).

Angiosperm:

- They produce flowers.
- Pollination takes place by wind, water, insects etc.
- They are closed seed bearing plants.
- Xylem and phloem are well developed.
- The sporophyte is the dominant phase. Gametophytic phase is much reduced in angiosperms.

Question 4.

Write the economic importance of Gymnosperms.

Answer:

1. Woods of many conifers are used in the paper industries, example Pinus, Agathis.

2. Conifers are the sources of soft wood for construction, packing and plywood industry example Cedrus, Agathis.
3. Turpentine is an essential oil used for paint preparation extracted from the resin of Pinus. It is also used medicinally for relief from pain and bronchitis etc.
4. Seeds of Pinus gerardiana are edible.
5. Ephedrine is an alkaloid extracted from Ephedra. It cures asthma and respiratory problems.
6. Araucaria bidwillii is an ornamental plant.

Question 5.

Write the names of medicinal plants and explain their uses.

Answer:

Medicinal plants and their uses:

1. Acalypha indica (Kuppaimeni):

- The paste obtained from the leaves of this plant is used to cure the bums on the skin.
- The juice of this plant leaves is mixed with lemon juice to cure ringworm.

2. Aegle marmelos (Vilvam):

- The unripe fruit of this tree is used to treat indigestion.
- It is used to cure chronic, diarrhoea and dysentery.

3. Solanum trilobatum:

- The leaves and fruits of this plant cure cough and cold.
- It is widely used in the treatment of tuberculosis and bronchial asthma.

4. Phyllanthus amarus (Keezhanelli):

- The entire plant is used for the treatment of jaundice.
- It gives additional strength to human liver and used to treat other liver disorders.

5. Aloe vera (Sothu katrazhai):

- Leaves of this plant is used to cure piles and inflammations on the skin.
- It cures peptic ulcer.

VIII. Assertion and Reason

Question 1.

Assertion (A) : Penicillin is an antibiotic extracted from Penicillium notation.

Reason (R) : It can kill (or) inhibits the growth of the other micro organism.

(a) Both A and R True, R explains A

(b) A only correct, R doesn't explain A

- (c) A True, R explains A
- (d) Both A and R False.

Answer:

- (a) Both A and R True, R explains A

Question 2.

Assertion (A): Artificial system of classification is otherwise called sexual system of classification.

Reason (R) : Artificial system of classification is based on the nature of the vegetative characters.

- (a) Both A and R correct
- (b) Both A and R incorrect
- (c) A is correct R is incorrect
- (d) A is incorrect and R is correct

Answer:

- (c) A is correct R is incorrect

Question 3.

Assertion (A): Bryophytes are called Amphibians of the plant kingdom.

Reason (R) : Bryophytes are land plants but they need water for the completion of their life cycle.

- (a) A correct R correct
- (b) A incorrect R correct
- (c) A and R correct R explain A
- (d) A and R incorrect

Answer:

- (c) A and R correct R explains A