

**BOTANY****SECTION-A**

1. Which of the following statements are not **correct**?

- (i) Lower the taxon, more are the characteristics that the members within the taxon share.
 - (ii) Order is the assemblage of genera which exhibit a few similar characters.
 - (iii) Cat and dog are included in the same family Felidae.
 - (iv) Binomial nomenclature was introduced by Carolus Linnaeus.
- (1) (i), (ii) and (iii)
(2) (ii), (iii) and (iv)
(3) (i) and (iv)
(4) (ii) and (iii)

2. Class is the category of taxonomy which includes related?

- (1) families (2) orders
(3) genera (4) species

3. Select the **mismatched** pair.

- (1) Order Primata – Gibbon, monkey, gorilla
(2) Order Carnivora – Tiger, cat, dog
(3) Polymoniales – Liliaceae, folanaceae families
(4) Order Carnivora – Felidae and Canidae families

4. Which one of the following cellular parts is **correctly** described?

(1)	Thylakoids	–	Flattened membranous sacs forming the grana of chloroplasts
(2)	Centrioles	–	Sites for active RNA synthesis
(3)	Ribosomes	–	Present on chloroplasts are (80 S) while those in the cytoplasm are smaller (70 S)
(4)	Lysosomes	–	Optimally active at a pH of about 8.5

5. The name *club fungi* is given to basidiomycetes due to the presence of;

- (1) club-shaped basidia.
(2) sac-shaped basidia.
(3) hymenium of basidia.
(4) water droplet mechanism for dehiscence of basidiospores.

6. Somatogamy is the fusion of;

- (1) two vegetative / somatic cell, of different strain / genotypes to form dikaryotic cell.
(2) sperm with egg.
(3) two somatic cells having identical strain.
(4) egg with egg.

7. Coenocytic hypha is;

- (1) uninucleate hypha.
(2) multicellular hypha.
(3) multinucleate hypha without septate.
(4) hypha in coelom.

8. Domain Eukarya includes how many kingdoms (with respect to six kingdom system)?

- (1) Two (2) Three
(3) One (4) Four

9. Plant classification proposed by Carolus Linnaeus was artificial because it was based on;

- (1) only a few morphological characters.
(2) evolutionary tendencies which are diverse.
(3) anatomical characters which are adaptive in nature.
(4) physiological traits along with morphological characters.

10. Pyrenoids are present in _____ of most of the green algae.

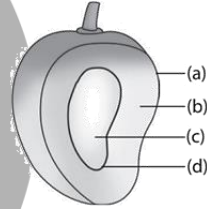
- (1) mitochondria
(2) chloroplast
(3) cytosol
(4) nucleus

11. **Statement I:** CJD and BSE diseases are caused by Prions.

Statement II: Prions are free, infectious and low molecular weight RNA molecules.

- (1) Statement I and Statement II both are correct.
(2) Statement I is correct but Statement II is correct.
(3) Statement I is incorrect but Statement II is correct.
(4) Statement I and Statement II both are incorrect.



12. Elaters are present in sporogonium of;
(1) *Selaginella* (2) *Marchantia*
(3) *Sargassum* (4) *Sphagnum*
13. Racemose inflorescence is identified by;
(1) acropetal arrangement of flowers on peduncle.
(2) presence of sessile flowers.
(3) continuous growth of main axis.
(4) Both (1) and (3).
14. Which of the following statements does **not** characterise the red algae?
(1) Floridean starch is the reserve food.
(2) Both spores and gametes are non-motile.
(3) Post fertilisation development is like other algae.
(4) Vary their ratio of photosynthetic pigments depending upon the light conditions.
15. **Statement I:** Bryophytes are amphibians of plant kingdom.
Statement II: They live in soil but depend on water for sexual reproduction.
(1) Statement I and Statement II both are correct.
(2) Statement I is correct but Statement II is correct.
(3) Statement I is incorrect but Statement II is correct.
(4) Statement I and Statement II both are incorrect.
16. Bryophytes resemble algae in the following aspects:
(1) Thallus like plant body, presence of root and autotrophic nature.
(2) Thallus like plant body, lack of vascular strands and autotrophic nature.
(3) Filamentous body, presence of vascular tissue and autotrophic nature.
(4) Well differentiated plant body into stem, leaf and root, autotrophic nature.
17. Ovary is one-chambered, but it becomes two chambered due to formation of **false** septum is found in
(1) *Argemone* and mustard.
(2) *Dianthus* and primrose.
(3) Rose and tomato.
(4) Pea and beans.
18. Which of the following is **correct** about dicot seed?
(a) Micropyle is present above the hilum.
(b) At the ends of embryonal axis radicle and plumule is present
(c) Seed coat has three layers.
(d) Cotyledons are generally without food reserve.
(1) (a) and (b)
(2) (b) and (c)
(3) (c) and (d)
(4) (a) and (d)
19. In monocot leaf.
(1) bulliform cells are absent from the epidermis.
(2) veins form a network.
(3) mesophyll is well-differentiated into three parts.
(4) mesophyll is not differentiated into palisade and spongy parenchyma.
20. Label the parts (a), (b), (c) and (d) in the following diagram.
- 
- | (A) | (B) | (C) | (D) |
|--------------|----------|----------|----------|
| (1) Epicarp | Pericarp | Endocarp | Mesocarp |
| (2) Pericarp | Mesocarp | Epicarp | Endocarp |
| (3) Epicarp | Endocarp | Mesocarp | Epicarp |
| (4) Epicarp | Mesocarp | Seed | Endocarp |
21. Select the **correct** statements from the following.
(a) In monocot leaf base expand into a sheath covering the stem partially or wholly.
(b) In all leguminous plants the leaf base may become swollen, which is called the pulvinus.
(c) The lamina or leaf blade is the green expanded part of the leaf with veins and veinlets.
(d) Veins provide rigidity to leaf blade.
(1) (a) and (b)
(2) (c) and (d)
(3) All except (b)
(4) All except (d)



22. Identify the order where plants show alternate, opposite and whorled phyllotaxy.

- (1) China rose, *Calotropis* and *Nerium*
- (2) China rose, *Nerium* and *Calotropis*
- (3) *Nerium*, *Calotropis* and China rose
- (4) *Calotropis*, China rose and *Nerium*

23. Whorled, simple leaves with reticulate venation are present in;

- (1) *Calotropis*
- (2) mustard
- (3) gulmohur
- (4) *Nerium*

24. The plumule and radical in monocot seed are enclosed in sheaths which are called _____ and _____ respectively.

- (1) coleoptile; scutellum.
- (2) scutellum; coleorhiza.
- (3) coleoptile; coleorhiza.
- (4) coleorhiza; coleoptile.

25. Which is **correct** for the gynoecium of fabaceae?

- (1) Tricarpellary, syncarpous, superior ovary, trilobular with many ovules, axile placentation.
- (2) Bicarpellary, syncarpous, superior ovary, bilobular, swollen placenta with many ovules.
- (3) Superior ovary, monocarpellary, unilobular with many ovules.
- (4) Tricarpellary, inferior ovary, syncarpous, trilobular with many ovules, axile placentation.

26. **Assertion (A):** Generally, dicotyledonous plants have tap roots and reticulate venation while monocotyledonous plants have fibrous roots and parallel venation

Reason (R): The morphological feature of stem like the presence of nodes and internodes, multicellular hairs and positively phototropic nature help to differentiate the stems from roots.

- (1) Both **Assertion (A)** and **Reason (R)** are true and **Reason (R)** is the correct explanation of **Assertion (A)**.
- (2) Both **Assertion (A)** and **Reason (R)** are true but **Reason (R)** is not the correct explanation of **Assertion (A)**.
- (3) **Assertion (A)** is true but **Reason (R)** is false.
- (4) Both **Assertion (A)** and **Reason (R)** are false.

27. Which of the following is **not** an example of lateral meristem?

- (1) Fascicular vascular cambium
- (2) Interfascicular cambium
- (3) Cork-cambium
- (4) Periderm

28. **Assertion (A):** 6 molecules of CO_2 and 12 molecules of $\text{NADPH}^+ + \text{H}^+$ and 18 ATP are used to form one hexose molecule.

Reason (R): Light reaction results in formation of ATP and NADPH_2 .

- (1) Both **Assertion (A)** and **Reason (R)** are true and **Reason (R)** is the correct explanation of **Assertion (A)**.
- (2) Both **Assertion (A)** and **Reason (R)** are true but **Reason (R)** is not the correct explanation of **Assertion (A)**.
- (3) **Assertion (A)** is true but **Reason (R)** is false.
- (4) Both **Assertion (A)** and **Reason (R)** are false.

29. Which of the following is **not** a modification of parenchyma?

- (1) Aerenchyma
- (2) Prosenchyma
- (3) Collenchyma
- (4) Chlorenchyma

30. Match List-I with List-II to find out the **correct** option.

List-I		List-II	
(A)	Marginal	(I)	Lemon
(B)	Axile	(II)	Pea
(C)	Parietal	(III)	Primrose
(D)	Free-central	(IV)	Argemone
(E)	Basal	(V)	Marigold

- (1) (A)-(I), (B)-(II), (C)-(III), (D)-(III), (E)-(V)
- (2) (A)-(V), (B)-(IV), (C)-(III), (D)-(II), (E)-(I)
- (3) (A)-(II), (B)-(I), (C)-(IV), (D)-(III), (E)-(V)
- (4) (A)-(III), (B)-(I), (C)-(V), (D)-(II), (E)-(IV)

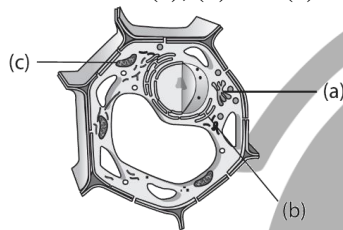


31. Match **List-I** with **List-II** to find out the **correct** option.

	List-I		List-II
(A)	Oxygen evolving complex ferric oxalate	(I)	Pigments
(B)	Proton gradient concentration	(II)	High oxygen
(C)	Absorb light at specific wavelengths.	(III)	ATP synthesis
(D)	Photorespiration	(IV)	Photolysis of water

- (1) (A) – (IV); (B) – (III); (C) – (I); (D) – (II)
 (2) (A) – (IV); (B) – (I); (C) – (III); (D) – (II)
 (3) (A) – (II); (B) – (I); (C) – (IV); (D) – (III)
 (4) (A) – (II); (B) – (IV); (C) – (III); (D) – (I)

32. Labelled structures (a), (b) and (c) are respectively;



- (1) Golgi apparatus, endoplasmic reticulum and microtubule.
 (2) microtubule, ribosome and lysosome.
 (3) Golgi apparatus, endoplasmic reticulum and mitochondrion.
 (4) microtubule, peroxisome and golgiappartus.

33. Match **List-I** with **List-II** to find out the **correct** option.

	List-I		List-II
(A)	Bud in the axil of leaf	(I)	Pitcher plant and Venus Fly trap
(B)	Bud in the axil of leaflets	(II)	Cacti
(C)	Spines (modified leaves)	(III)	Compound leaf
(D)	Leaves modified to catch insects	(IV)	Simple leaf
(E)	Fleshy leaves with stored food	(V)	Garlic and onion

- (A) (B) (C) (D) (E)
 (1) (i) (ii) (iii) (iv) (v)
 (2) (v) (iv) (iii) (ii) (i)
 (3) (iv) (iii) (ii) (i) (v)
 (4) (iv) (ii) (iii) (i) (v)

34. Which of the following statements are **true** about endoplasmic reticulum?

- (a) Smooth endoplasmic reticulum makes lipids.
 (b) It is also called the control centre of the cell.
 (c) It processes carbohydrates.
 (d) It modifies chemicals that are toxic to the cell.
 (1) All except (d)
 (2) All except (b)
 (3) Only (a) and (d)
 (4) All of these

35. Which of the following is **not** the function of centrioles?

- (1) It forms the basal body of cilia
 (2) It helps in the formation of spindle fibres during cell division
 (3) Osmoregulation
 (4) Both (1) and (2).

SECTION-B

36. Duration of cell cycle of human cell is about;

- (1) 90 minutes.
 (2) 1 hour.
 (3) 24 days.
 (4) 1 day.

37. Which of the following is **not** a feature of telophase?

- (1) Chromosomes cluster at opposite spindle poles.
 (2) Centromere split and chromatids separate.
 (3) Nuclear envelope assembles around the chromosomeclusters.
 (4) Nucleolous, Golgi complex and ER reform.

38. Chiasma forms at;

- (1) leptotene (2) diplotene
 (3) diakinesis (4) pachytene.

39. Tetrad is made of;

- (1) four non-homologous chromatids.
 (2) four non-homologous chromosomes.
 (3) four homologous chromosomes with four chromatids.
 (4) two homologous chromosomes and each with two chromatids.



40. Constancy of the chromosome number in successive generations is brought by the process of;
- (1) mitosis
 - (2) meiosis
 - (3) conjugation
 - (4) None of these.
41. **Assertion (A):** C_4 photosynthetic pathway is more efficient than the C_3 pathway.
Reason (R): Photorespiration is suppressed in C_4 plants.
- (1) Both **Assertion (A)** and **Reason (R)** are true and **Reason (R)** is the correct explanation of **Assertion (A)**.
 - (2) Both **Assertion (A)** and **Reason (R)** are true but **Reason (R)** is not the correct explanation of **Assertion (A)**.
 - (3) **Assertion (A)** is true but **Reason (R)** is false.
 - (4) Both **Assertion (A)** and **Reason (R)** are false.
42. **Assertion (A):** Grasses (*Cynodon dactylon*) used for lawn need to be trimmed frequently.
Reason (R): Grasses show presence of intercalary meristem which helps them to elongate rapidly
- (1) Both **Assertion (A)** and **Reason (R)** are true and **Reason (R)** is the correct explanation of **Assertion (A)**.
 - (2) Both **Assertion (A)** and **Reason (R)** are true but **Reason (R)** is not the correct explanation of **Assertion (A)**.
 - (3) **Assertion (A)** is true but **Reason (R)** is false.
 - (4) Both **Assertion (A)** and **Reason (R)** are false.
43. Curve showing the effectiveness of different wavelengths of light in photosynthesis was first given by Engelmann using all, except;
- (1) Filamentous green alga, *Cladophora*.
 - (2) Unicellular green alga, *Chlorella*.
 - (3) Suspension of aerobic bacteria.
 - (4) Prism to split the light in its components.
44. When RuBisCO acts as an oxygenase?
- (1) phosphoglycerate and phosphoglycolate are produced.
 - (2) phosphoenol pyruvate is oxidised.
 - (3) net carbon fixation is enhanced.
 - (4) it must mean that the plant is deprived of CO_2 .
45. The protons formed by splitting of water are released in the;
- (1) lumen of the thylakoids
 - (2) outer side of the membrane
 - (3) Both (1) and (2)
 - (4) stroma of chloroplast
46. Read the following statements and select the **correct** ones.
- (i) Conidia are the asexual propagules restricted to kingdom Fungi.
 - (ii) A piece of potato tuber having at least one eye (or node) is capable to giving rise to a new plant.
 - (iii) Ginger propagates vegetatively with the help of its underground roots.
 - (iv) Fleshy buds which takes part in vegetative propagation are called bulbils, present in *Dioscorea*, *Agave*, etc.
- (1) (ii) and (iii)
 - (2) (i) and (iv)
 - (3) (i), (ii) and (iv)
 - (4) (i), (ii) and (iii)
47. Glycolysis occurs in the _____ and produces _____, which in the presence of O_2 enters the _____?
- (1) cytosol; pyruvate; mitochondrion.
 - (2) cytosol; glucose; mitochondrion.
 - (3) mitochondrion; pyruvate; cytosol.
 - (4) chloroplast; glucose; cytosol.
48. Which one of the following is complex V of the ETS of inner mitochondrial membrane?
- (1) NADH dehydrogenase
 - (2) Cytochrome oxidase
 - (3) Succinate dehydrogenase
 - (4) ATP synthase



49. Read the following four statements, A, B, C and D and select the right option having both **correct** statements.

Statement:

- (A) Z scheme of light reaction takes place in presence of PSI only.
- (B) Only PSI is functional in cyclic photophosphorylation
- (C) Cyclic photophosphorylation results into synthesis of ATP and NADPH(H^+)
- (D) Stroma lamellae lack PSII as well as NADP reductase

Option:

- (1) A and B
- (2) B and C
- (3) C and D
- (4) B and D

50. Plants shows kranz anatomy;

- (1) CAM plant
- (2) C3 plants
- (3) C2 plants
- (4) None of these

