



BOTANY

SECTION – A

1. *Felis* + *Panthera* → __A__
Solanaceae + *Convolvulaceae* → __B__
Identify A and B and choose the **correct** option.
(1) A - Canidae, B – Poales
(2) A - Felidae, B – Polymoniales
(3) A - Felidae, B – Sapindales
(4) A - Canidae, B – Polymoniales
2. Read the statements given below and identify the **incorrect** statement.
(1) Scientific names are used all over the world.
(2) Scientific names indicate relationship between species.
(3) Scientific names favour multiple naming for the same kind of an organism.
(4) Scientific names are often descriptive and tell us some important character of an organism.
3. Which of the following are **not** the processes that are basic to taxonomy?
(1) Characterisation (2) Systematics
(3) Identification (4) Nomenclature
4. **Statement I:** Potato and brinjal are two different genera but both belong to the species *Solanum*.
Statement II: *Mangifera* and *indica* are specific and generic epithets, respectively.
(1) Statement I and Statement II both are correct.
(2) Statement I is correct, but Statement II is incorrect.
(3) Statement I is incorrect, but Statement II is correct.
(4) Statement I and Statement II both are incorrect.
5. Dikaryophase fungi which lack sex organs are:
(1) Phycomycetes (2) Ascomycetes
(3) Basidiomycetes (4) Deuteromycetes
6. Diatomaceous earth is formed due to which substance?
(1) Phosphorus (2) Calcium
(3) Silica (4) Copper
7. **Statement I:** Linnaeus classified plants into trees, shrubs and herbs, on the basis of their morphological characters.
Statement II: Aristotle divided animals into two groups – Anaima and Enaima.
(1) Only statement I is correct.
(2) Only statement II is correct.
(3) Both statement I and statement II are correct.
(4) Both statement I and statement II are incorrect.
8. Which of the following characters belong to slime moulds?
(a) Saprophytes
(b) Forms plasmodium under favorable condition
(c) Spores possess true walls
(d) Spores are dispersed by water
(e) Body moves along decaying twigs and leaves engulfing organic matter.
(1) All except (e)
(2) All except (d)
(3) All except (c) and (e)
(4) All except (b)
9. In artificial system, the organisms are classified on the basis of;
(1) All the possible characters.
(2) Phylogenetic trends.
(3) A few characters.
(4) Anatomical, cytological and biochemical traits along with morphological traits.
10. Choose the **correct** statement.
(1) Many species of *Porphyra*, *Laminaria* and *Sargassum* are among 70 species of marine algae used as food.
(2) Agar is used to grow microbes and in preparations of ice creams and jellies.
(3) Algae are useful to man in a variety of ways.
(4) All of these.
11. As compared to slime moulds, Euglenoids show;
(A) Chloroplasts
(B) Mixotrophic nutrition
(C) Proteinaceous pellicle
(D) Contractile vacuole
(1) A & B (2) B & C
(3) A, B & C (4) A, B, C & D



12. Elaters are present in sporogonium of;
 (1) *Selaginella*. (2) *Marchantia*.
 (3) *Sargassum*. (4) *Sphagnum*.

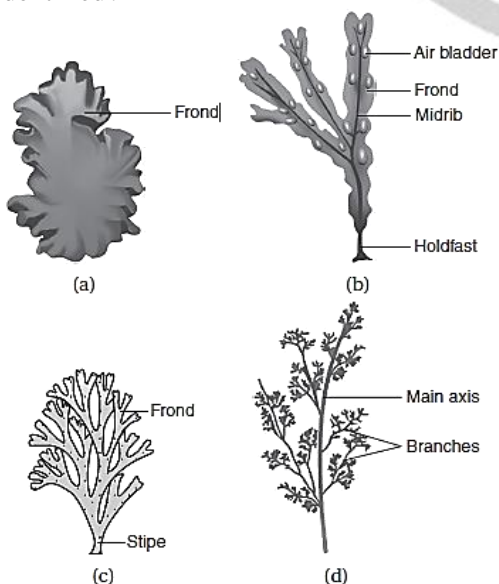
13. Which one of the following is **not** a characteristic feature of bryophytes?
 (1) Dominant gametophytic generation
 (2) Filamentous rhizoids
 (3) Amphibious habitat
 (4) Vascular tissues

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

List-I		List-II	
(A)	Agar	(I)	<i>Gelidium</i> , <i>Gracilaria</i>
(B)	Algin	(II)	Brown algae
(C)	Carrageen	(III)	Red algae
(D)	<i>Chlorella</i> and <i>Spirulina</i>	(IV)	Single cell protein, used food supplements by space travellers

- (1) (A) – (I); (B) – (II); (C) – (III); (D) – (IV)
 (2) (A) – (IV); (B) – (III); (C) – (II); (D) – (I)
 (3) (A) – (II); (B) – (I); (C) – (III); (D) – (IV)
 (4) (A) – (III); (B) – (II); (C) – (I); (D) – (IV)
15. **Statement I:** CJD and BSE diseases are caused by Prions.
Statement II: Prions are free, infectious and low molecular weight RNA molecules.
 (1) S-I is true and S-II is false
 (2) S-I is false and S-II is true
 (3) Both S-I and S-II are true
 (4) Both S-I and S-II are false

16. Examine the figures (a), (b), (c), (d). In which one of the four options of all the items are correctly identified?



	(a)	(b)	(c)	(d)
(1)	<i>Porphyra</i>	<i>Fucus</i>	<i>Dictyota</i>	<i>Polysiphonia</i>
(2)	<i>Polysiphonia</i>	<i>Porphyra</i>	<i>Dictyota</i>	<i>Fucus</i>
(3)	<i>Fucus</i>	<i>Dictyota</i>	<i>Porphyra</i>	<i>Polysiphonia</i>
(4)	<i>Porphyra</i>	<i>Polysiphonia</i>	<i>Fucus</i>	<i>Dictyota</i>

17. How many of the given functions are performed by roots?
 Photosynthesis, Absorption of water from soil, Protection of reproductive structures, Conduction of minerals, Formation of pollen grains, Fertilisation;
 (1) None (2) One
 (3) Two (4) Four
18. Which of the following is **not** the function of root?
 (1) To spread out branches bearing leaves and buds
 (2) Absorption of water and minerals from the soil
 (3) Providing a proper anchorage to the plant parts
 (4) Storing reserve food material
19. Which of the following is representing a **correct** match?
 (1) Phylloclade – *Ruscus*.
 (2) Phyllode – *Opuntia*.
 (3) Cladode – *Acacia*.
 (4) Hook – *Artabotrys*.
20. Ginger is a stem which can be differentiated from root because it;
 (1) Grows parallel to ground.
 (2) Stores food.
 (3) Lacks chlorophyll.
 (4) Has nodes and internodes.
21. Which of the following is incorrect about leaf?
 (1) It is arranged in acropetal order.
 (2) It develops from a node.
 (3) It is generally flattened in shape.
 (4) It is arranged in basipetal order.
22. Which of the following statements is false about leaf?
 (1) A leaf is said to be simple, when its lamina is entire or when incised, the incisions do not touch the margin.
 (2) A leaf is said to be compound when the incisions of lamina reach up to the midrib breaking into a number of leaflets.
 (3) Leaf is the most important vegetative organ for photosynthesis.
 (4) Leaf is not a transpiring organ.



23. Assertion (A): The position of mother axis with respect to the flower is represented by a dot on the top of the floral formula.

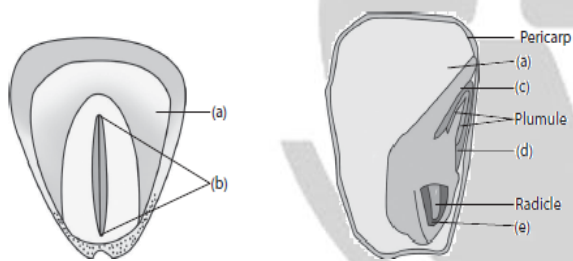
Reason (R): The fabaceae family was earlier called Leguminosae, a subfamily of family papilionoidae.

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

24. Which of the following is **incorrect** about carpel?

- (1) Ovary is enlarged basal portion.
- (2) Stigma is usually at tip of style.
- (3) Style is elongated tube over ovary.
- (4) Style is the receptive surface for pollen grains.

25. Given below is the diagram of a typical structure of monocotyledonous seeds. In which one of the options all the five parts (a) – (e) are correctly labelled?



- (1) (a) – Endosperm; (b) – Embryo; (c) – Scutellum; (d) – Coleorrhiza; (e) – coleoptile
- (2) (a) – Embryo; (b) – Endosperm; (c) – Scutellum; (d) – Coleoptile; (e) – Coleorrhiza
- (3) (a) – Endosperm; (b) – Embryo; (c) – Scutellum; (d) – Coleoptile; (e) – Coleorrhiza
- (4) (a) – Embryo; (b) – Endosperm; (c) – Scutellum; (d) – Coleorrhiza; (e) – Coleoptile

26. Select the **incorrect** statement(s) from the following:

- (a) *Citrus* and *Ricinus* have synandrous condition.
 - (b) In epipetalous condition, the cohesion occurs between tepal and filament of stamen.
 - (c) Tetradynamous condition consists of two long and four short stamen filaments.
- (1) Only (a)
 - (2) Only (c)
 - (3) Only (b)
 - (4) All above statements are incorrect

27. Staminal tube is a characteristic feature of;

- (1) Asteraceae
- (2) Leguminosae
- (3) Cruciferae
- (4) Malvaceae

28. Which of the following is possessed by gymnosperms?

- (1) Sieve cells
- (2) Companion cells
- (3) Xylem vessels
- (4) Xylem fibres

29. Which tissue is characterised by dead cells?

- (1) Collenchyma
- (2) Parenchyma
- (3) Sclerenchyma
- (4) Chlorenchyma

30. When the margins of sepals or petals overlap one another without any particular direction, the condition is termed as?

- (1) vexillary
- (2) imbricate
- (3) twisted
- (4) valvate.

31. Read the following functions carefully:

- (a) Helps in secretion by plants
- (b) Initiation of lateral roots
- (c) To store food material as starch
- (d) Provide mechanical support to organs
- (e) Initiation of vascular cambium
- (f) Radial conduction of water

Which of the given functions is performed by pericycle?

- (1) (b) and (e)
- (2) (b) and (d)
- (3) (a) and (c)
- (4) (a) and (e)

32. _____, the German botanist, examined a large number of plants and observed that all plants are composed of different kinds of cells which form the tissue of plant.

- (1) Rudolf Virchow
- (2) Schwann
- (3) Schleiden
- (4) Anton Von Leeuwenhoek

33. Which nature of lipid enables lateral movement of proteins within the overall bilayer?

- (1) Elasticity
- (2) Fluidity
- (3) Quasi-fluid
- (4) Amphipathic



34. Which of the following statements is **not** true about the ER?

- (1) It is of two types, rough and smooth.
- (2) It is a network of tubules and flattened sacs.
- (3) Some of it is sprinkled with ribosome.
- (4) It is found in all living cells.

35. Axoneme is a structure associated with;

- (1) Golgi bodies
- (2) only cilia
- (3) only flagella
- (4) Both cilia and flagella

SECTION – B

36. Calculate amount of DNA in a cell after meiosis II, if DNA content of cell is 4 pg at S phase;

- (1) 4 pg. (2) 2 pg.
- (3) 1 pg. (4) 8 pg.

37. The stage of cell division at which morphology of chromosomes is most easily studied is;

- (1) Prophase. (2) Metaphase.
- (3) Anaphase. (4) Telophase.

38. Appearance of recombination nodules depicts;

- (1) The sites at which crossing over occurs between non-sister chromatids of homologous chromosomes.
- (2) The site which helps chromosomes to get stick to membrane of nucleus.
- (3) Site where spindle fibre binds to chromosome.
- (4) Both (1) and (2).

39. Which of the following statements is **incorrect**?

- (1) Prophase II is simpler than prophase I.
- (2) Prophase I is longer and complex than prophase of mitosis.
- (3) Nuclear membrane reappear in telophase I.
- (4) Anaphase I is not characterised by splitting of centromere.

40. In China rose, the flowers are;

- (1) zygomorphic, hypogynous with imbricate aestivation
- (2) zygomorphic, epigynous with twisted aestivation
- (3) actinomorphic, hypogynous with twisted aestivation
- (4) actinomorphic, epigynous with valvate aestivation.

41. In C_3 plants, the first stable product of photosynthesis during the dark reaction is;

- (1) malic acid
- (2) oxaloacetic acid
- (3) 3-phosphoglyceric acid
- (4) phosphoglyceraldehyde.

42. Genera *Sellaginella* and *Salvinia* produce two kinds of spores. Such plants are called;

- (1) Heterosporous (2) Homosporous
- (3) Homosorous (4) Heterosorous

43. The wavelength of light to carry out photosynthesis in bacteria is;

- (1) Ultraviolet. (2) Blue.
- (3) Red. (4) Far red.

44. Biosynthetic phase of life use all except _____ that is produced in photochemical phase.

- (1) ATP (2) NADPH
- (3) O_2 (4) None of these

45. Bundle sheath cells have all of the following characters except:

- (1) Large in size.
- (2) Large number of chloroplast.
- (3) Thick wall impervious to gaseous exchange.
- (4) With intercellular spaces.

46. At higher light intensities gradually photosynthesis rate does not show further increase, why?

- (1) Higher light intensity activate more chlorophylls
- (2) Higher light intensity causes more transpiration
- (3) No need of more sugar formation
- (4) Other factors become limiting

47. In Krebs cycle;

- (1) Acetyl coenzyme A undergoes 4 oxidations and 2 decarboxylations.
- (2) Pyruvic acid undergoes 4 oxidations and 2 decarboxylations.
- (3) TCA undergoes 4 oxidations and 4 decarboxylations.
- (4) OAA undergoes 4 oxidations and 2 decarboxylations.



48. In alcoholic fermentation, NAD^+ is produced during the;

- (1) Reduction of acetaldehyde to ethanol.
- (2) Oxidation of glucose.
- (3) Oxidation of pyruvate to acetyl CoA.
- (4) Hydrolysis of ATP to ADP.

49. Which of the following is difficult to measure directly?

- (1) Increase in protoplasm content
- (2) Increase in surface area
- (3) Increase in dry weight
- (4) Increase in volume

50. What are the actions of ABA?

- (1) General plant growth inhibitor
- (2) Inhibitor of plant metabolism
- (3) Stimulates closure of stomata in epidermis
- (4) All of these.



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