



BOTANY

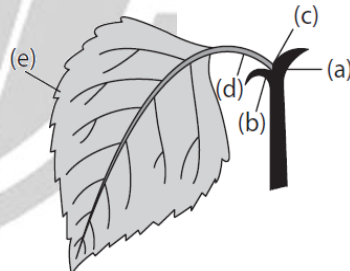
SECTION-A

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

List-I		List-II	
(A)	Family	(I)	Tuberosum
(B)	Kingdom	(II)	Polymoniales
(C)	Order	(III)	Solanum
(D)	Species	(IV)	Plantae
(E)	Genus	(V)	Solanaceae

- (1) (A)-V, (B)-IV, (C)-II, (D) -I, (E)-III
(2) (A)-V, (B)-IV, (C)-I, (D) -III, (E)-II
(3) (A)-I, (B)-II, (C)-III, (D) -V, (E)-IV
(4) (A)-II, (B)-I, (C)-III, (D) -IV, (E)-V
2. Which of the following is incorrect with respect to species?
- (1) A group of individual organisms with Fundamental similarities.
(2) Two different species breed together to produce fertile offspring.
(3) Human beings belong to the species *sapiens*.
(4) *Panthera* has many specific epithet as *tigris*, *leo* and *pardus*.
3. Which one of the following is an odd category?
- (1) Species (2) Class
(3) Phylum (4) Sub family
4. In dicot seed, a scar is seen on the seed coat through which the developing seeds were attached to the fruit. This is called;
- (1) Testa (2) Tegmen
(3) Hilum (4) Micropyle
5. Carlous Linnaeus system is an artificial system because it is;
- (1) Phylogenetic.
(2) Based on evolutionary trends.
(3) Based on number of characters.
(4) Based on a few characters of superficial similarities and dissimilarities on morphology.
6. Which of the following is a difference between eubacteria and archaebacteria?
- (1) They look very different from each other under microscope.
(2) Eubacteria are autotrophic and archaebacteria are heterotrophic.
(3) Archaebacteria are unicellular and eubacteria are colonial.
(4) They have different chemicals in their cell membranes and cell walls.

7. Which type of DNA is found in bacteria?
- (1) Circular DNA
(2) Membrane-bound DNA
(3) Straight DNA
(4) Helical DNA
8. All of the following diseases are caused by bacteria except;
- (1) Flu. (2) Cholera.
(3) Tetanus. (4) Typhoid.
9. Natural system of classification is based on;
- (1) Ontogeny.
(2) Phylogeny.
(3) Morphology.
(4) Morphology and affinities.
10. Match **List-I** with **List-II** to find out the **correct** option.
- | List-I | | List-II | |
|--------|--|---------|--|
| (A) | Agar | (I) | <i>Gelidium</i> ,
<i>Gracillaria</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)
11. Which of the following statements is **incorrect** regarding gymnosperms?
- (1) Leaves of gymnosperms are well adapted to withstand extremes of temperature, humidity and wind.
(2) In Pinus the pinnate leaves persist for a few years.
(3) In Cycas stems are unbranched.
(4) In Pinus male or female cones are borne on the same tree.

12. Sex organs in bryophytes are;
 (1) Unicellular and jacketed.
 (2) Unicellular and non-jacketed.
 (3) Multicellular and jacketed.
 (4) Multicellular and non-jacketed.
13. Which of the following is true about bryophytes?
 (1) They are thalloid.
 (2) They contain chloroplast.
 (3) They possess archegonia.
 (4) All of these.
14. 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.
15. Which of the following is not the propounder of Phylogenetic system of classification?
 (1) Engler and Prantl
 (2) Hutchinson
 (3) Takhtajan
 (4) Bentham and Hooker
16. Karyotaxonomy is based on;
 (1) Trinomial nomenclature.
 (2) Organic evolution.
 (3) Number of chromosomes.
 (4) Bands formed on chromosomes.
17. Haustorial root is exceptional to;
 (1) *Cuscuta*. (2) *Cactus*.
 (3) *Zea mays*. (4) *Monotropa*.
18. Read the following statements.
 (a) The primary roots and its branches constitute the tap root system.
 (b) In dicotyledenous plants, the primary root is short lived and is replaced by a number of roots.
 (c) Fibrous roots are observed in wheat plant, whereas tap roots are observed in mustard plant.
 (d) The main function of roots is providing nodes and internodes.
 How many of the given statements are correct?
 (1) One (2) Two
 (3) Three (4) Four
19. Which of the following is **incorrect** about stem?
 (1) It is developed from plumule of embryo of a germinating seed.
 (2) It bears nodes and internodes.
 (3) It bears only terminal bud not axillary bud.
 (4) Its main function is spreading of branches and bear leaves, flowers and fruits.
20. **Assertion (A):** Interphase nucleus has a loose and indistinct network of nucleoprotein fibres.
Reason (R): During different stages of cell division, cells show structured chromosomes.
 (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.
21. Epipodium is an alternate name of;
 (1) Leaf-base. (2) Veinlets.
 (3) Petiole. (4) Lamina.
22. Identify (a) to (e) in below figure?

- (1) (a) – Leaf base; (b) – Petiole; (c) – Stipule; (d) – Lamina; (e) – Axillary bud
 (2) (a) – Stipule; (b) – Axillary bud; (c) – Leaf base; (d) – Petiole; (e) – Lamina
 (3) (a) – Lamina; (b) – Stipule; (c) – Petiole; (d) – Leaf base; (e) – Axillary bud
 (4) (a) – Stipule; (b) – Leaf base; (c) – Axillary bud; (d) – Lamina; (e) – Petiole
23. When the lamina is incised and it touches the mid-rib at many places, such a leaf is called a compound leaf. An example of such a leaf is;
 (1) Mango. (2) *Calotropis*.
 (3) Neem. (4) *Ficus*.



24. One cotyledon is found in;
(1) Wheat and maize.
(2) Wheat and pea.
(3) Bean and gram.
(4) Ground nut and pea.
25. Embryo is made up of;
(1) A radicle.
(2) Embryonal axis.
(3) One of two cotyledons.
(4) All of these.
26. Floral features are represented in the summarized form as;
(1) Family. (2) Floral formula.
(3) Floral diagram. (4) Both (2) and (3).
27. Select the **incorrect** statement regarding the secondary meristems.
(1) Develop from permanent tissues by dedifferentiation
(2) Cells possess dense cytoplasm
(3) Give birth to primary permanent tissues
(4) Add growth in width
28. **Statement I:** Neurospora is extensively used in biochemical and genetical studies.
Statement II: Both *Claviceps* and *Neurospora* have conidia present endogenously on branched or unbranched conidiophores.
(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.
29. Flowers are Zygomorphic in;
(1) Mustard (2) Gulmohur
(3) Tomato (4) Datura
30. Identify the correct examples of the class of algae that produce hydrocolloid 'caragreen'
Porphyria, *Ulothrix*, *Spirogyra*, *Dictyota*, *Sargassum* and *Gelidium*
Choose the correct option.
(1) Ulothrix and Dictyota
(2) Spirogyra and Sargassum
(3) Porphyria and Gelidium
(4) Sargassum and Gelidium
31. Casparian strips are made up of _____ and found as depositions in the _____.
(1) Cutin; epidermis
(2) Lignin; hypodermis
(3) Pectin; exodermis
(4) Suberin; endodermis
32. Select the correct statement.
(1) Anything less than a complete structure of a cell does not ensure independent living.
(2) Anton Von Leeuwenhoek first saw and described a living cell.
(3) Robert Brown discovered nucleus.
(4) All of these.
33. Identify the wrong statement regarding a cell membrane.
(1) The detailed structure of the membrane was studied only after the advent of the electron microscope in the 1950s.
(2) The lipids are arranged within the membrane with the polar head towards the inner sides and the hydrophobic tails towards the outer part.
(3) In human beings, the membrane of the erythrocyte has approximately 52% proteins and 40% lipids.
(4) The lipid component of the membrane mainly consists of phosphoglycerides.
34. The Golgi apparatus (dictyosome) ;
(1) Is found in animal cells only.
(2) Is found in prokaryotes only.
(3) Is the site of rapid ATP production.
(4) Packages and modifies proteins.
35. Which of the following organelles can act as an intracellular scavenger?
(1) Lysosome
(2) Mitochondria
(3) Peroxisomes
(4) Glyoxysomes



SECTION-B

- 36.** Mark the **correct** statements.
- (a) In the 24 hour average duration of cell cycle of a human cell, cell division proper lasts for only about an hour.
 - (b) Interphase lasts more than 95% of the duration of cell cycle.
 - (c) DNA content gets half at S phase of interphase.
 - (d) G₂ phase is also called post mitotic phase.
- (1) (a) and (b) (2) (b) and (c)
(3) (a) and (d) (4) (c) and (d)
- 37.** The longest and shortest phases of mitosis are respectively;
- (1) Prophase and metaphase.
 - (2) Metaphase and anaphase.
 - (3) Anaphase and telophase.
 - (4) Prophase and anaphase.
- 38.** Cells having 20 bivalents undergoes meiosis I. Calculate the number of chromatids in each nuclei after meiosis I.
- (1) 20 (2) 40
(3) 10 (4) 80
- 39.** Diakinesis is characterised by;
- (1) Condensation of chromosome.
 - (2) Assemblage of spindle.
 - (3) Disappearance of nucleous and nuclear membrane.
 - (4) All of these.
- 40.** Which one is **correct** about bivalent?
- (a) Bivalent are tetrads.
 - (b) A bivalents means 4 chromatids and 2 centromeres.
 - (c) One bivalent consists of 2 homologous chromosomes, each and sister chromatids.
 - (d) Bivalents form in zygotene.
- (1) All of these (2) Only (c)
(3) (c) and (d) (4) Only (d)
- 41.** Chemical constituents of plants such as alkaloids, raphides, crystals, aromatic compounds etc are used as characteristics for which type of new systemics;
- (1) Chemotaxonomy
 - (2) Cytotaxonomy
 - (3) Karyotaxonomy
 - (4) Experimental taxonomy
- 42.** Read the following statements and choose **correct** option.
- Statement-I:** Root cap protects the root meristem from the friction of the soil.
- Statement-II:** Meristematic zone cells are thick walled.
- (1) Both statement I and II are correct.
(2) Statement I is correct but statement II is incorrect.
(3) Statement I is incorrect but statement II is correct.
(4) Both statement I and II are incorrect.
- 43.** Joseph Priestley observed that when mouse alone was placed in a closed bell jar with burning candle, it was suffocated and candle burning extinguished but when mouse was placed with a mint plant in the same bell jar that mouse stayed alive and candle continued to burn. What did he conclude from this experiment?
- (1) Burning candle remove the air
 - (2) Mint plant restore the air
 - (3) Both (1) and (2)
 - (4) CO₂ is required for burning of candle
- 44.** A student sets up an experiment on photosynthesis as follows. He takes soda water in a glass tumbler, and adds chlorophyll extract into the contents and keeps the tumbler exposed to sunlight, hoping that he has provided all the necessary ingredients for photosynthesis to proceed (namely CO₂, water, chlorophyll and light). What, do you think, will happen after, say, a few hours of exposure to light?
- (1) Photosynthesis will take place and glucose will be produced and the mixture will become sweet.
 - (2) Photosynthesis will take place and starch will be produced which will turn the mixture turbid.
 - (3) Photosynthesis will not take place because the CO₂ dissolved in soda water escapes into the atmosphere.
 - (4) Photosynthesis will not take place because intact chloroplasts are needed for the process.



45. **Assertion (A):** Both at the root apex and the shoot apex, the constantly dividing cells show the meristematic phase of growth.
Reason (R): The cells of this region are rich in protoplasm and lacks nuclei.
- (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.
46. Select the **incorrect** statement from the following:
- (1) At high intensities, both C_3 and C_4 plants shows increase in rate of photosynthesis by increasing CO_2 concentration.
 - (2) C_4 plants show saturation at 360 ppm.
 - (3) C_3 plants show saturation beyond 450 ppm.
 - (4) Productivity of tomatoes and bell pepper cannot be increased by enriching environment by CO_2 .
47. Krebs cycle is also called TCA (Tricarboxylic acid cycle) or citric acid cycle (Organic acid cycle). It is also called metabolic sink as it is;
- (1) Common pathway for carbohydrates, fats and proteins (amino acids).
 - (2) Common pathway for carbohydrates and fats only.
 - (3) Common pathway for carbohydrates and organic acids only.
 - (4) None of these.
48. Which of the following describes significance of fermentation?
- (a) Production of alcohol in brewing industry.
 - (b) Making of dough in baking industry.
 - (c) Curing of tea and tobacco.
 - (d) Production of vinegar by acetic acid bacteria.
- (1) (a), (b) and (c)
 - (2) (a), (b) and (d)
 - (3) (b), (c) and (d)
 - (4) (a), (b), (c) and (d)
49. 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.
50. Vascular bundles in monocotyledons are considered closed because;
- (1) there are no vessels with perforations
 - (3) xylem is surrounded all around by phloem
 - (3) a bundle sheath surrounds each bundle
 - (4) cambium is absent.

