



Note: Use separate paper for botany and zoology

Bio-Botany

I. Choose the correct answer:

[8 x 1 = 8]

1. Which one of the following statement about virus is correct?
 - a. Possess their own metabolic system
 - b. They are facultative parasites
 - c. They contain DNA or RNA
 - d. Enzymes are present
2. Which of the plant group has gametophyte as a dominant phase?
 - a. Pteridophytes
 - b. Bryophytes
 - c. Gymnosperm
 - d. Angiosperm
3. Roots are
 - a. Descending, negatively geotropic, positively phototropic
 - b. Descending, positively geotropic, negatively phototropic
 - c. Ascending, positively geotropic, negatively phototropic
 - d. Ascending, negatively geotropic, positively phototropic
4. Which one of the following is not an underground stem?
 - a. Ginger
 - b. Colacasia
 - c. Carrot
 - d. Onion
5. Which of the following is a flowering plant with nodules containing filamentous nitrogen fixing micro - organisms?
 - a. Crotalaria juncea
 - b. Cycas revolute
 - c. Cicer arietinum
 - d. Casuarina equisetifolia
6. Phylogenetic classification is the most favoured classification because it reflects
 - a. Comparative Anatomy
 - b. Number of flowers produced
 - c. Comparative cytology
 - d. Evolutionary relationships
7. The two subunits of ribosomes remain united at critical ion level of
 - a. Magnesium
 - b. Calcium
 - c. Sodium
 - d. Ferrous
8. Match the columns and identify the correct option:

Column-I

Column-II

- | | |
|----------------|---|
| (a) Thylakoids | (i) Disc-shaped sacs in Golgi apparatus |
| (b) Cristae | (ii) Condensed structure of DNA |
| (c) Cisternae | (iii) Flat membranous sacs in stroma |
| (d) Chromatin | (iv) Infoldings in mitochondria |

(a) (b) (c) (d)

(1) (iii) (iv) (ii) (i)

(2) (iv) (iii) (i) (ii)

(3) (iii) (iv) (i) (ii)

(4) (iii) (i) (iv) (ii)

II. Answer any 4 of the following questions:

[4 x 2 = 8]

Question Number 10 is compulsory

9. Write the distinguishing features of monera.
10. What is transformation? Explain with an example.
11. What are breathing roots?
12. What is phylloclade?
13. What is author citation? Give an example.
14. Draw and label chloroplast.

III. Answer any 3 of the following questions:

[3 x 3 = 9]

Question Number 17 is compulsory

15. Give a general account of lichens.
16. Do you think shape of chloroplast is unique for algae? Justify your answer.
17. Explain the region of root.
18. What are the medicinal plants of solanaceae?
19. Write a short note on the fluid mosaic model of plasma membrane.

IV. Answer the following questions:

[2 x 5 = 10]

20. a) What is phyllotaxy? Explain the types.

[OR]

- b) General characteristic features of bryophytes.

21. a) Explain the connation and Adnation in Androecium.

[OR]

- b) Explain Bentham and Hookers classification.

Bio-Zoology

I. Choose the correct answer:

[8 x 1 = 8]

1. Who coined the term biodiversity?
a) Walter Rosen b) AG Tansley c) Aristotle d) AP de Candole
2. Molecular taxonomic tool consists of
a) DNA and RNA b) Mitochondria and Endoplasmic reticulum
c) Cell wall and Membrane proteins d) All the above
3. Metameric segmentation is the main feature of
a) Annelida b) Echinodermata c) Arthropoda d) Coelenterata
4. Prevention of substances from leaking across the tissue is provided by
a) Tight junction b) Adhering junction c) Gap junction d) Elastic junction
5. Non-shivering thermogenesis in neonates produces heat through
a) White fat b) Brown fat c) Yellow fat d) Colourless fat
6. Kidney of frog is
a) Archinephros b) Pronephros c) Mesonephros d) Metanephros
7. Enterokinase takes part in the conversion of
a) Pepsinogen into pepsin b) Trypsinogen into trypsin
c) Protein into polypeptide d) Caseinogen into casein
8. The oxygen Dissociation Curve is
a) Sigmoid b) straight line c) curved d) rectangular hyperbola

II. Answer any 4 of the following questions:

[4 x 2 = 8]

Question Number 10 is compulsory

9. Differentiate between probiotics and pathogenic bacteria.
10. Compare closed and open circulatory system.
11. Why blood is considered as a typical connective tissue?
12. Differentiate between peristomium and prostomium in earthworm.
13. Give the location of clitellum and spermathecal openings in *Lampito mauritii*.
14. Air moving from the nose to the trachea passes through a number of structures. List in order the structures.

III. Answer any 3 of the following questions:

[3 x 3 = 9]

Question Number 16 is compulsory

15. What is the difference between a Zoo and wild life sanctuary?
16. List the features that all vertebrates show at some point in their development?
17. Differentiate between elastic fibres and elastic connective tissue.
18. Bile juice contains no digestive enzymes, yet it is important for digestion. Why?
19. Resistance in the airways is typically low. Why? Give two reasons.

IV. Answer the following questions:

[2 x 5 = 10]

20. a) Can we use recent molecular tools to identify and classify organisms?

[OR]

b) Write the classification of connective tissue and their functions.

21. a) Explain the female reproductive system of frog with diagram.

[OR]

b) List the chemical changes that starch molecule undergoes from the time it reaches the small intestine.

-----ALL THE BEST-----