(English Version)

Instructions:

i) Draw diagrams wherever necessary.

ii) Unlabelled diagrams do not get any marks.

PART I — (BOTANY)

SECTION – A

Answer the following questions in one word or in one sentence each:

5 x 1 = 5

1. Name the enzyme produced by lac Z gene present in lac operon.

2. Name the water conducting tissue in plants.

3. Define osmosis.

4. What is RQ value for carbohydrates?

5. Give an example for naturally occurring Auxin.

SECTION – B

Answer any five of the following questions in 2 to 5 sentences each:

5 x 2 = 10

6. Name the types of RNA.

7. List any four applications of DNA fingerprinting.

8. Differentiate between Phellem and Phelloderm.

9. Draw a labelled diagram of hydathode.

10. What is bolting? Name the phytohormone responsible for this.


[Turn over]
SECTION – C

Answer any four of the following questions in about 200 to 250 words each wherever applicable:

12. What is genetic code? Explain any four of its characteristic features.

13. Explain the structure of pUC18 with a labelled sketch.

14. Describe the steps in monoclonal antibody production.

15. With a labelled diagram explain the structure of Parenchyma tissue. Mention any two functions of it.

16. What is transpiration? List two advantages and two disadvantages of it.

17. Explain cyclic photophosphorylation with a schematic representation.

SECTION – D

I. Answer any one of the following:


19. Give reasons for the following:
   a) Nucleotide ratio in RNA is highly variable.
   b) DNA replication is semi-conservative.
   c) In open field, plants show high rate of transpiration.
   d) Overmanuring without water results in wilting and death of plant.
   e) Yeast cells consume less glucose molecules in the presence of oxygen.

   (Questions only from the Practical Syllabus)

II. Answer any one of the following:


21. Explain Kuhne’s fermentation experiment with a labelled diagram.
PART II — ( ZOOLOGY )

SECTION – E

Answer the following questions in one word or one sentence each:

22. Write the chromosomal complement of Klinefelter's syndrome.
23. What are sacred grooves?
24. Name the hyperglycemic factor secreted by pancreas.
25. What are interferons?
26. Name the band of nerve fibres connecting cerebral hemispheres.

SECTION – F

Answer any five of the following questions in about 2 to 5 sentences each:

27. Write the genotypes of blood group A and blood group B.
28. What is biodiversity? Mention any two types of biodiversity.
29. What is acid rain? Mention any two effects of acid rain on human health.
30. What are analgesics? Give two examples.
31. Draw a labelled diagram of V.S. of blastula.
32. What is conception? Name two assisted conception methods.

SECTION – G

Answer any four of the following questions in about 200 to 250 words each wherever applicable:

33. What is incomplete dominance? Explain inheritance of flower colour in Mirabilis jalapa.
34. What is biodiversity depletion? Explain the impact of deforestation and loss of soil fertility on biodiversity.
35. Explain carbohydrate and fat digestion in small intestine.
36. What is breathing? Explain the mechanism of breathing.
37. Draw a neat labelled diagram of Nephron.
38. Explain Oogenesis with a schematic representation.
SECTION – H

I. Answer any one of the following:  \[ 1 \times 5 = 5 \]

39. Draw a neat labelled diagram of V.S. of human heart.

40. Give reasons for the following:  \[ 5 \times 1 = 5 \]
   a) People with blood group 'O' are called universal donors.
   b) Lion tailed Macaque is an endemic species of Western Ghats.
   c) The injury to cerebrum can lead to the loss of muscular movement.
   d) Oxytocin is called birth hormone.
   e) Pituitary is a master gland.

(Questions only from the Practical Syllabus)

II. Answer any one of the following:  \[ 1 \times 5 = 5 \]

41. a) Draw a neat labelled diagram of T.S. of mammalian testis.  \[ 4 \]
    b) What is the significance of Biuret test?  \[ 1 \]

42. a) Draw a neat labelled diagram of Areolar connective tissue.  \[ 4 \]
    b) Name the membrane covering the hyaline cartilage.  \[ 1 \]