

**Tripura  
Class XI  
Biology  
Sample Paper – 1**

**Time: 3 hrs**

**Total marks: 70**

**General instructions:**

1. All Questions are Compulsory.
2. There is no overall choice. However, there is an internal choice in one question of 2 marks weightage, one question of 3 marks and all the question of 5 marks

---

**SECTION A**

**1.**

- (i) Define cladistics. [1]
- (ii) What is the main function of sepals? [1]
- (iii) Can there be mitosis without DNA replication in the 'S' phase? [1]
- (iv) What does the half-leaf experiment on photosynthesis indicate? [1]
- (v) What does the H-zone of a sarcomere in a myofibril contain? [1]
- (vi) Name an alga which is used in laboratory culture media. [1]
- (vii) Why is a leaf of silk cotton called palmately compound? [1]
- (viii) Which stage of cell division will you select to study the morphology of chromosomes and why? [1]
- (ix) What does the variegated leaf experiment of photosynthesis prove? [1]

**SECTION B**

**2.**

- (i) What are gemmae? What role does it play in reproduction? [2]
- (ii) Explain a competitive inhibitor with a suitable example. [2]

**OR**

What are fatty acids? Give two examples indicating the number of carbon atoms present in each.

- (iii) What is meant by vital capacity? List any two categories of people who possess higher vital capacity. [2]

- (iv) Where are the myelinated and non-myelinated fibres commonly found in the nervous system? [2]
- (v) What is meant by haemocoel? Name the phylum which shows this feature. [2]
- (vi) Differentiate between saturated and unsaturated fats. [2]
- (vii) Differentiate between tidal volume and residual volume. [2]

**SECTION C**

**3.**

- (i) What steps would you follow to classify a specimen? [3]
- (ii) Describe the structure and functions of the tracheary elements. [3]
- (iii)
- (a) How is a pinnately compound leaf different from a palmately compound leaf?
- (b) The transverse section of a plant material shows the following anatomical features –
- The vascular bundles are conjoint, scattered and surrounded by a sclerenchymatous bundle sheath.
  - Phloem parenchyma is absent.  
What will you identify it as? [3]
- (iv) Explain with suitable examples the different types of phyllotaxy. [3]
- OR**
- Draw a labelled diagram of the alimentary canal of a cockroach.
- (v) [3]
- (a) What is meant by the dynamic state of body constituents?
- (b) Name the form of energy which is used by living cells.
- (c) What is an apoenzyme?
- (vi) Write any two characteristics of mitochondria and draw a labelled diagram of a mitochondrion. [3]
- (vii) What is the significance of meiosis? [3]
- (viii) Give one chief function and one main deficiency symptom for each of the following in plants: Iron, Zinc and Phosphorus. [3]
- (ix) Where does carboxylation take place in a  $C_3$  plant? Explain the process? [3]
- (x) Why the parathyroid hormone (PTH) is considered a hypercalcemic hormone? [3]
- (xi) Name the different types of teeth and their number in an adult human. [3]

**SECTION D**

4. Read the passage and answer the questions which follow:

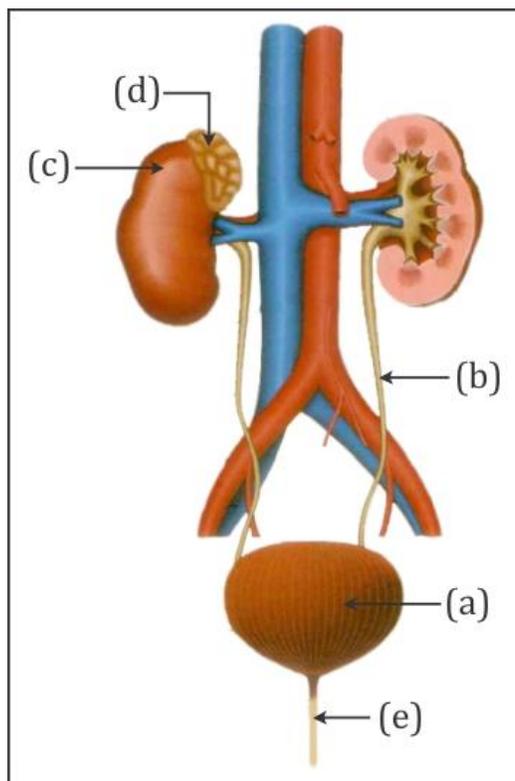
The Principal advised the students to grow more plants because they not only provide humans with food substances but also purify the air. Hemant asked his biology teacher to elaborate on this aspect. The teacher then explained it to him in detail. [4]

- i. How can plants help in purifying the air?
- ii. List conditions essential for photosynthesis.
- iii. What other product, essential for survival of living organisms, is produced during photosynthesis?
- iv. What is reflected in the Principal's advice to the students?

**SECTION E**

5.

(i) Study the given figure of the excretory system of man carefully and answer the following questions: [5]



- (a) Name the parts labelled (a), (b), (c), (d) and (e).
- (b) Give one major function of each of these parts.

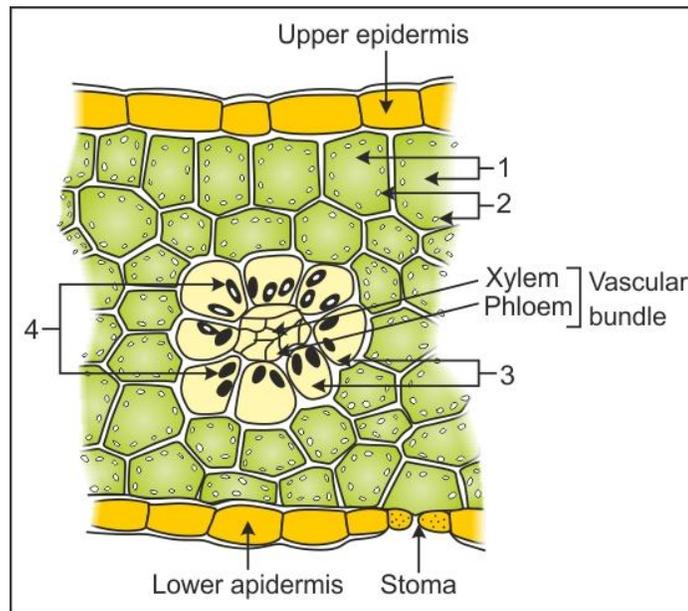
**OR**

Name the components of the formed elements in the blood and mention one major function of each.

- (ii) Explain why? [5]
- Exogenous application of auxin fails to enhance the growth of intact plants.
  - Vitamins are not considered as plant growth hormones.
  - It is appropriate to call a short-day plant a long-night plant.
  - Some plants, belonging to halophytes and growing in marshy lands, face great difficulty in germination.
  - Gibberellins do not enhance the growth of isolated plant parts.

**OR**

A portion of the cross-section of leaf is shown in the diagram. Answer the following:



- Label 1 to 4.
- What kind of anatomy is shown in the diagram?
- Write the structure and functions of 2 and 4.