

# CBSE Class 11 Biology Sample Paper Set 4

**Time Duration: 3Hrs**

**Maximum Marks: 60**

## **General Instructions:**

1. All questions are compulsory.
2. The question paper comprises of five sections A,B,C, D and E .
3. There is no overall choice however, internal choice has been provided in one questions of 2 marks, one questions of 3 marks and all the two questions of 5 marks category. Only one option in such questions is to be attempted.
4. Questions 1 to 5 in section A are very short questions of 1 mark each
5. Questions 6 to 9 in section B are short questions of 2 marks each.
6. Questions 10 to 20 in section C are questions of 3 marks each . Question 21 is of 4 marks.
7. Questions 22 to 23 in section D are questions of 5 marks each.
8. In the exam, section E will have three questions (question number 24,25 and 26 covering a total of 10 marks) based on OTBA study material provided by CBSE. This sample paper does not have this section.

## **Section -A**

- 1.Mention a common characteristic feature of mammalian RBC and plant sieve tube cells. [1]
- 2.Due to large scale production of rice, an important greenhouse gas concentration is increasing in the atmosphere. Name it.[1]
- 3.Name the enzymes of citric acid cycle present in inner mitochondrial membrane.[1]
- 4.What are the components of a mitotic apparatus in an animal cell? Which of these components is lacking in plant cell? [1]
- 5.Glomerular filtrate comprises of water, glucose, amino acids and creatine. Which among the above are reabsorbed actively and rapidly by blood? [1]

## **Section -B**

- 6.Explain mixotrophic nutrition with an example. [2]
- 7.Differentiate between runner and stolon. [2]
- 8.What connects the left and right hemispheres of cerebrum? Name the four lobes into which each hemisphere is divided. [2]
- 9.Give one difference between [2]
  - (a)Imbibition and diffusion
  - (b)Osmotic pressure and osmotic potential

or

Discuss the contribution of Julius Von Sachs. [2]

### Section -C

10. Describe the biochemical composition of plasma membrane with special emphasis on arrangement of lipid molecules. [3]

11. Define collenchyma. Describe its role in structure and other function in the plant body of herbaceous angiosperm. [3]

12. "All vertebrates are chordates but all chordates are not vertebrates". Justify the statement. [3]

13. (a) Why is conditioned reflex considered to be lost with time?

(b) Give two advantages of reflex action in animals.

14. Explain how inhibitors might be important for plant survival. [3]

15. (a) Name the disaccharide, the major sugar found in insect haemolymph. [1]

(b) Identify the organic compounds having common names. [1]

(i) Brain sugar

(ii) Fruit sugar

(iii) Malt sugar

(iv) Table sugar

(c) Give names of two saturated and two unsaturated fatty acids. [1]

16. Draw a labelled diagram of a nephron showing blood vessels, ducts and tubules. Also, write the names of two main types of nephrons. [3]

17. How does a tree trunk exchange gases with the environment although it lacks stomata? [3]

18. Distinguish anaphase of mitosis from anaphase-I of meiosis. [3]

or

Give an account of structure, location and function of compound epithelium. [3]

19. Write a short note on action spectrum. [3]

20. Explain the role of calcium ions in muscle contraction. [3]

21. While having lessons of biology in school, Rohit listened carefully to his teacher Mrs Kavita, explaining how do plants grow, develop and prepare their own food by photosynthesis. She also explained them that they themselves can observe this by growing a plant at home. Rohit too, out of curiosity potted a plant in his room but after a week or two, he observed that leaves of plant became yellow and finally they started wilting.

He asked his biology teacher about this and she told him that light is necessary for photosynthesis to occur.

(a) Give an overall equation for photosynthesis showing its requirements as well as products formed.

(b) What role do light play in the process of photosynthesis?

(c) Name other factors that influence the rate of photosynthesis.

(d) What values are observed from Rohit's character? [4 x 1]

### Section -D

22. *Allium sativum* belongs to which class, family? Describe the floral characters and floral formula of this family. [5]

or

We find that *Rhizobium* forms nodules on the roots of leguminous plants. Also *Frankia*, another microbe forms nitrogen-fixing nodules on the roots of non-leguminous plant *Alnus*.

(a) Can we artificially induce the property of nitrogen-fixation in a plant, leguminous or non-leguminous? [2]

(b) What kind of relationship is observed between mycorrhiza and pine trees? [1]

(c) Is it necessary for a microbe to be in close association with a plant to provide mineral nutrition? Explain with the help of an example. [2]

23. Describe various forms of lipid with a few examples. [5]

or

Name the organism in which heterocyst is present, Explain its features. Which feature make it suitable for nitrogen-fixation? [5]