CBSE
Class XI Biology
Sample Paper – 3

Time: 3 hrs **Total marks: 70**

General instructions:

1. All questions are compulsory.
2. The question paper consists of four sections A, B, C and D.
3. Internal choice is given in all the sections. A student has to attempt only one of the alternatives in such questions.
4. Section A contains 5 questions of 1 mark each.
5. Section B has 7 questions of 2 marks each.
6. Section C is of 12 questions of 3 marks each.
7. Section D has 3 questions of 5 marks each.
8. Wherever necessary, the diagrams drawn should be neat and properly labelled.

SECTION A

1. Why were bacteria, cyanobacteria and fungi included in the plant kingdom in the earliest classification systems? [1]

OR

What are storage bodies of green algae called? Where are they located in the cells?

2. Mention the functions of underground stems. [1]

3. Name the outermost and innermost layers of the cell envelope in a prokaryotic or bacterial cell. [1]

4. When is a mineral element considered toxic in plant nutrition? [1]

OR

Nitrogen fixation is shown by prokaryotes and not eukaryotes. Comment.

5. What is the name given to the bulb-like structure at the axon terminal? [1]

SECTION B

6. What do you mean by metagenesis? Give one example of an animal which shows metagenesis. [2]

7. What are plasmodesmata? What is their function? [2]

OR

What is crossing over? Name the enzyme responsible for it.

8. What is oxidative decarboxylation of pyruvic acid? When does it occur? [2]

9. Why does the colour of a leaf kept in dark frequently become yellow or pale green? Which pigment do you think is more stable? [2]

OR

Distinguish between glycolysis and fermentation.

10. Draw a labelled diagram showing binary fission in bacteria. [2]

11. Name the type of connective tissue which serves as a support framework for the epithelium. Mention its cell types. [2]

12. Mention two functions performed by the centriole. [2]

SECTION C

13. Name the type of fertilisation which is unique to angiosperms. Describe it. [3]

14. Describe the structures which constitute the mouth parts of a cockroach. [3]

OR

Answer in one word or one line.

(a) What is the position of the ovaries in a cockroach?

(b) How many segments are present in the abdomen of a cockroach?

(c) Where do you find Malpighian tubules?

15. Cork cambium forms tissues which form the cork. Do you agree with this statement? Explain. [3]

16. What is meant by modification of root? What type of modification of root is found in [3]

(a) Banyan tree (b) Turnip (c) Mangrove trees

OR

What is a perianth? What term is given to its constituent members? Give an example.

17. Who proposed the cell theory? List its main postulates. [3]

18. What is a mesosome in a prokaryotic cell? Mention the functions which it performs. [3]

19. Describe the important properties of enzymes. [3]

OR

List the four steps involved in the catalytic action of an enzyme.

20. A patient was complaining of frequent urination, excessive thirst, hunger and tiredness. His fasting blood level was found to be higher than 130 mg/dL on two occasions. [3]

i. Name the disease
ii. Give the root cause of this disease
iii. Explain why the blood glucose level is higher than 130 mg/dL

21. How does carboxylation take place in the sugarcane plant? [3]

22. Why is it that deficiency symptoms appear first in the younger parts of certain plants, while they do so in mature organs in others? [3]

23. Draw a standard ECG and explain the different segments in it. [3]

OR

What is the significance of the juxtaglomerular apparatus (JGA) in kidney function?

24. Two groups (A and B) of bean plants of similar size and same leaf area were placed in identical conditions. Group A was exposed to light of wavelength 400–450 n and Group B to light of wavelength 500–550 nm. Compare the photosynthetic rate of the two groups giving reasons. [3]

SECTION D

25. Name at least five different deficiency symptoms in plants. Describe them and correlate them with the concerned mineral deficiency. [5]

OR

i. What are respiratory substrates? Name the most common respiratory substrate.
ii. Give the schematic representation of an overall view of the Krebs cycle.

26. Name the hormone which regulates each of the following and mention its source. [5]

i. Heat beat and blood pressure
ii. Secretion of growth hormone
iii. Maturation of Graafian follicles
iv. Rise in calcium ion level in the blood
v. Milk secretion

OR

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

27. How many vertebrae do we have in all? Categorise them on the basis of their location and give the specific number in each category. [5]

OR

Explain the conduction of a nerve impulse along a nerve fibre.