

CLASS-XI
SUB: BIOLOGY

TIME ALLOWED: 3 HOURS

MM: 70

General Instructions

1. The question paper comprises of five Sections A, B, C, D, E and F
2. All questions are compulsory.
3. There is no overall choice however; internal choice has been provided in one question of 2 marks, one question of 3 marks and all the two questions of five marks category. Only one option in such question is to be attempted.
4. Questions 1 to 5 in section A are very short questions of one mark each. These are to be answered in one word or one sentence each.
5. Questions 6 to 9 in section B are short questions of two marks each. These are to be answered in approximately 20-30 words each.
6. Questions 10 to 20 in section C are questions of three marks each. These are to be answered in approximately 30-50 words each.
7. Question 21 in section D is of 4 marks.
8. Questions 22 to 23 in section E are questions of five marks each. These are to be answered in approximately 80-120 words each.
9. Questions 24 to 26 in section F is based on OTBA of 10 marks.

SECTION – A (1 mark each)

1. What does 'leg' in leghaemoglobin refer to?
2. Name the chemical used for grinding the animal tissue for chemical analysis of organic compound.
3. Mention two similarities between diffusion & facilitated diffusion.
4. What is the proportion of proteins & lipids in the membrane of human erythrocytes?
5. Why does the immune system become weak in old human beings?

SECTION – B (2 marks each)

6. How is the gut lining protected from its own secretion of HCl?

7. Name the structures found at the junction of midgut and hindgut of cockroach. What are they meant for?

Or

Draw a labelled diagram of cardiac muscles fibres.

8. Define turgor pressure. Mention the uses of turgor pressure to plants.

9. What are kinetochores? What are their functions?

Section – C (question no. from 10 – 20 are of 3 marks each, q no. 21 is of 4 marks)

10. Draw a neat diagram of typical leaf and label any six parts.

11. When and why does reduction in the number of chromosomes take place in meiosis?

12. Define RQ. Show its value for fats and carbohydrates.

13. Differentiate between saturated and unsaturated fatty acids. Give one example of each.

Or

Differentiate between anabolism and catabolism, along with an example of each.

14. Name the categories of plant hormones concerned with each of the following and describe one more function of each of the hormones:

a) Inhibition of seed germination

b) Promote flowering

c) Cell division-promoting activity

15. Answer the following with reference to the anatomy of dicot root

a) Where is pericycle located?

b) How are xylem vessels arranged?

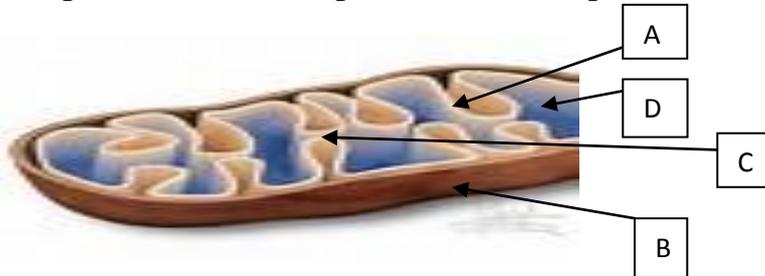
c) What do you call such an arrangement?

d) Which type of cells constitutes the cortex?

16. Mention the locations in our body (at least four) where smooth muscles are present. Represent diagrammatically the smooth muscle.

17. Name the three enzymes secreted by pancreas and their action on proteins, fats and starch.

18. Fill in the blanks at (A), (B),(C),and (D) as shown in the diagram. Name the chemical present in its (D) part which is also present in chloroplast.



19. Explain the chemical events that take place to form a blood clot to seal the wound.

20. Indicate whether the following statements are true or false:

- Micturition is carried out by a reflex.
- ADH helps in water elimination, making the urine hypotonic.
- Henle's loop plays an important role in concentrating urine.

Section –D (4 Marks)

21. During an excursion to a botanical garden, the teacher shows an old tree which was on the verge of extinction. As soon as the teacher advanced with the students, some enthusiastic students climbed up the tree and started cutting the branches, collecting its leaves as precious collection. Rajesh instead took photographs of the tree from various angles. The boys mocked at Rajesh while the teacher appreciated him.

- What values does Rajesh possess?
- Why is that tree on the verge of extinction?
- Why should we conserve biodiversity?
- How can biodiversity be conserved?

(1x4=4)

Section – E (5marks each)

22. Explain the transmission of a nerve impulse across a chemical synapse with help of a suitable diagram.

Or

What is meant by a reflex arc? Draw a reflex arc and mention its components in proper sequence and their functions in a reflex action.

23. Where does calvin cycle take place in chloroplast ? Describe the three phases of calvin cycle with a diagrammatic representation.

or

Where does non-cyclic photophosphorylation take place? Describe this process. Why is this process called so called?

Section – F

OPEN TEXT – BASED ASSESSMENT (OTBA) – (2+3+5)

Instructions for Students:

01. These questions are based on one of the themes provided to you by the Board.
02. Please ensure that you get a copy of the relevant themes from the school to refer while answering the questions.
03. Question 1 carries 2 marks; Q no. 2 carries 3 marks and Q no 3. Carries 5 marks
04. The suggested word limit for the questions are 100-120 words. However depending on the marks allotted per question, your answer could be shorter / longer. It is important to present your views, arguments and conclusions logically, coherently in your own language; based on the concepts learnt during teaching learning sessions till class XI, their applicability with respect to the open text material and your own awareness of the given theme.

1. How can clean water help keep the environment safe and disease free? (2)
2. Mention some ways you think the general public can help keep the water bodies clean. (3)
3. “A scavenger’s work is not only dangerous but inhumane”. Evaluate this statement giving your own thoughts and arguments. You may take factual data from the text. (5)