

Roll No. _____

Code : 112122 B–A

Please check that this question paper contains 13 questions and 3 pages.

CLASS–XI
BIOLOGY
ANNUAL EXAM (2021-22)

Time allowed : 2 Hours

Maximum Marks : 35

General Instructions :

All questions are compulsory.

- (1) *The question paper has four sections : Section A, Section B, Section C and Section D. There are 13 questions in the question paper.*
 - (2) *Section A has three questions of 1 mark each, Section B has four questions of 2 marks each, Section C has one case-based question of 3 marks and two more questions of 3 marks each and Section D has three questions of 5 marks each.*
 - (3) *There is no overall choice. However, internal choice have been provided in one question of 2 marks, one question of 3 marks and one question of 5 marks. A student has to attempt only one of the alternatives in such questions.*
 - (4) *Wherever necessary, neat and properly labeled diagrams should be drawn.*
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Section-A

1. State the significant features of pachytene stage of meiosis I. 1
2. Name the excretory structure of earthworm and other annelids. 1
3. Name the synthetic phytohormones used for the given physiological effects in a plant. 1
 - (a) To kill dicotyledonous weeds in a lawn.
 - (b) To hasten fruits ripening in tomatoes and apples.

Section-B

4. (a) Name any two types of cells that are present in the semi-fluid ground substance of loose connective tissue.
- (b) Draw a labeled diagram of the type of epithelium which lines the inner surface of bronchioles. 2

5. Differentiate between Tidal volume and Residual volume. 2
6. Write a brief note on lysosomes. 2
7. Describe the functions of parathyroid hormone **Or** melatonin. 2

Section-C

8. Where does cyclic photophosphorylation take place in chloroplasts ? Explain the process of cyclic photophosphorylation through a schematic diagram. 3

OR

In which group of plants does photo respiration take place – C_3 or C_4 ? Why is photo respiration considered a wasteful process ?

9. Define activation energy. How does the presence of a biocatalyst affect activation energy ? Explain with the help of a graphical representation. 3
10. Case Study

Cell division is a very significant process in all living organisms. Prior to entering division phase, the cell undergoes a few changes in a coordinated way to ensure correct division and formation of daughter cells containing intact genomes. Among various changes in the cell, the change in nucleus takes place only during one specific stage.

- (a) Identify the change in nucleus and the specific stage in which it occurs.
- (b) If a cell with 2C DNA content enters this phase, what will be the DNA content of the cell in the next phase ?
- (c) Do all cells pass through this phase ? Give reasons for your answer. 3

Section-D

11. Give the schematic representation of the Citric Acid cycle. 5

OR

Explain the respiratory pathway which occurs in both aerobic and anaerobic organisms.

12. Answer the following with reference to the human heart :
- (a) Where is sino-atrial node located ?
 - (b) How does SA node maintain the rhythmic contractile activity of heart ?
 - (c) Draw a well labelled diagram of section of human heart showing distribution of nodal tissue. 5
13. Answer the given questions with reference to the neural system of humans : 5
- (a) What is the function of somatic neural system ?
 - (b) State any two types of neurons on the basis of number of axons and dendrites. Give an example where each of these are found.
 - (c) Draw a neat diagram showing chemical synapse. Label synaptic vesicles and synaptic cleft.

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