

Biology Theory

Class XII

Time allowed : 3 hours

Maximum marks : 70

General Instructions:

1. This question paper consists of four Sections A, B, C and D. Section A contains 5 questions of one mark each, section B is of 10 questions of two marks each Section C is of 10 questions of three marks each and Section D is of 3 questions of five marks each.
2. All questions are compulsory.
3. There is no overall choice .However an internal choice has been provided in one question of 2 marks, one question of 3 marks and three questions of 5 marks . Attempt only one of the choices in such questions.
4. Question number 1 to 5 are to be answered in one word or one sentence each.
5. Question number 6 to 15 are to be answered in approximately 20-30 words each.
6. Question number 16 to 25 are to be answered in approximately 30-50 words each.
7. Question number 26 to 28 are to be answered in approximately 80-120 words each.

Section A

1. NADH and FADH₂ are produced during citric acid cycle . How are these linked to Electron Transport System. Give the end products of this reaction. (1)
2. Which hormone is known as birth hormone and why? (1)
3. Scientists are trying to distinguish between changes which are associated with normal ageing and those associated with external or internal pathological effects. Name two examples of disease that best refer to this study. What is the study of science of ageing called? (1)
4. How is the chemical quality of the detritus determined? (1)
5. A blood sample report showed the T- helper cells to be as low as 180 – 200/mL
Which probable disease the person might be suspected with? Name the test done To detect the pathogen. Give two major symptoms of the disorder. (1)

Section B

6. Why is the conduction of electrical impulse along the neurons in many vertebrates considered advantageous. Name the cells responsible for this. What is this type of conduction called? (2)
7. How is the haemolymph important for cockroach? Give its functions. (2)
8. Stimulation by vagus nerve is very important in the duodenal region. Why? Which two non iron products are formed by the dead erythrocytes ? (2)
9. Expand ANF. How does this help in regulation of kidney function by feedback circuit? (2)
10. An over – ripe apple in a basket releases a gas, which affects the other apples in the basket. Name this gas and list its three other influences on plants. (2)
11. When a free radical is formed in human body, it is very harmful. These are known to implicate disorders like cancers. Define a free radical. Give three steps by which free radicals can lead to damage nucleic acids particularly DNA. (2)
12. How does removal of natural vegetation finally lead to depletion of soil fertility? (2)
13. If the global temperature rises by 2 to 5⁰ C during the 21st century. List the probable effects that will be seen for distribution of plants and animals. (2)
14. How are Stimulants different from Hallucinogens?

Or

- Drug abuse is not found among well – adjusted, satisfied and happy people but..... Comment . (2)
15. Soyabean and Taichung Native I are recently introduced crops. What is such a practice called as? Name the weed that came to India through this practice. How does the government avoid weeds and pathogens from entering the country? (2)

Section C

16. A special kind of adaptation in pineapple allows it to carry out photosynthesis

- without much loss of water. Name the adaptation . Explain it giving five major steps of the pathway. (3)
17. [a] How will you deplasmolyse a plasmolysed cell?
 [b] Why would one perspire more in a thick forest on a windless hot day?
 [c] Distilled water and 5% sugar solution have been separated by semi-permeable membrane. The distilled water when tested after some time with Benedicts reagent gave positive result. Give reason and name the process. (3)
18. Draw a well labeled scheme of Citric Acid Cycle. (3)
19. A regular smoker gets out of breath sooner than a non smoker of similar age and build. Name the disorders due to which this condition arises. Differentiate between the characteristics and symptoms of both disorders. (3)
20. Trace the development of a functional megaspore mother cell in a flower into a mature female gametophyte. Give the function of synergids. (3)
21. Give one antagonistic function of each of the following hormone pairs.
 [a] Gibberllin and Absciscic acid
 [b] Cytokinin and Ethylene
 [c] Ethylene and Auxin (3)
22. What are negative interactions in a community? Give their name and describe any one of these. (3)
23. Approximately one third of the earth's total land area is covered with forest. Describe the three key functions of a forest. (3)
24. After September 11th 2001 there was a constant news headline stating that letters containing Anthrax were widely being received in different parts of the world. Elucidate your views in relation to this. Specify the measures of control that can be taken in order to minimize life damage.

Or

- Nematodes are small animals that appear like worms, but are different from them. Many of them cause plant diseases. In what form are these nematodes found in the soil? How are they disseminated? List their disease symptoms.
- Give two methods used for their control. (3)
25. The immune system of a person is not making any discrimination between

the molecules of 'self' and 'non-self'.

[a] How will this situation affect the body?

[b] How are the nerve cells affected in multiple sclerosis?

[c] Which pathological disorders can arise due to this situation other than multiple sclerosis?

Section D

26. [a] Describe the structure of immunoglobulin with the help of a well labelled diagram .

[b] List the immunoglobulin into different classes and give the function of each.

Or



Explain the working of ECG. Label the various parts of the waves. What are the diagnostic uses of ECG. How the waves will change During myocardial infarction and arteriosclerotic heart disease?

(5)

27. How does Insulin act at molecular level? Explain.

Or

Explain the conduction of nerve impulse through an axon with the help of Diagrams.

(5)

28. Explain the photochemical phase of photosynthesis. Where does it take place?

Or

[a] Briefly explain N_2 fixation in plants.

[b] How are nodules formed in the roots of leguminous plants?

(5)