CBSE Class 12 Biology 2012 - Set 57/2/1

Question Paper

Conducted by the Central Board of Secondary Education (CBSE)

Time Allowed: 3 Hours **Maximum Marks: 70**

General Instructions

(i) All questions are compulsory.

(ii) The question paper consists of four sections: A, B, C and D. Section A contains 8 questions of 1 mark each; Section B contains 10 questions of 2 marks each; Section C contains 9 questions of 3 marks each; and Section D contains 3 questions of 5 marks each.

(iii) There is no overall choice. An internal choice is provided in one question of 2 marks, one question of 3 marks and all three questions of 5 marks. Attempt only one alternative in such questions.

(iv) Draw neat and properly labelled diagrams wherever necessary.

Section A

1. How is it possible in *Oxalis* and *Viola* plants to produce assured seed-sets even in the absence of pollinators?

2. Why do pollen grains of some flowers trigger 'sneezing' in some people?

3. A garden pea plant produced round green seeds. Another of the same species produced wrinkled yellow seeds. Identify the dominant traits.

4. Why is an earthworm called a detritivore?

5. Mention the location and the function of Leydig cells in humans.

6. Why is the South Indian sugarcane preferred by agriculturalists?

7. Comment on the similarity between the flippers of dolphins and penguins, with reference to evolution.

8. Mention the effect of global warming on the geographical distribution of stenothermals like amphibians.

Section B

9. Draw a labelled schematic diagram of a transcription unit.

10. Write the cellular contents carried by the pollen tube. How does the pollen tube gain its entry into the embryo sac?

11. Describe the role of lymph nodes in providing immunity.

12. How can the following be made possible for biotechnology experiments? (a) Isolation of DNA from bacterial cell. (b) Reintroduction of the recombinant DNA into a bacterial cell.

13. Refrigerants are considered to be a necessity in modern living, but are said to be responsible for ozone holes detected in Antarctica. Justify.

14. Name the product of fertilisation that forms the kernel of coconut. How does the kernel differ from coconut water?

15. Name the plant source of cocaine. How does it affect the human body?

OR

15. How does culturing *Spirulina* solve the food problems of the growing human population?

16. (a) How does the cryIAc gene express itself in its host? (b) State the role of this gene in controlling the infestation of bollworm.

17. Why are small birds like humming birds not found in polar regions? Explain.

18. Name the parasite that causes ascariasis. Mention two diagnostic symptoms of the disease. How is this disease transmitted to others?

Section C

19. Why is DNA considered a better hereditary material than RNA?

OR

19. How is hnRNA processed to form mRNA?

20. Evolution is a change in gene frequencies in a population in response to changes in the environment in a time scale of years and not centuries. Justify this statement with reference to DDT. How does the theory of Hugo de Vries support this?

21. (a) Name the Indian scientist whose efforts brought 'green revolution' in India. (b) Mention the steps that are essentially carried out in developing a new genetic variety of crop under plant breeding programme.

22. Mention the function of each of the following : (a) tassels of corn-cob (b) mitochondria in sperm (c) tapetum in the microsporangium

23. Explain the synthesis of genetically engineered human insulin.

24. How does AIDS virus enter the human body? Describe its life cycle. Why does this infection shatter the immunity of the victim?

25. (a) Explain sex determination in humans. (b) How do human males with 'XXY' abnormality suffer?

26. List the reasons that account for the greater biological diversity in tropics.

27. How are the DNA fragments separated and isolated for DNA fingerprinting? Explain.

Section D

28. (a) Name the green house gases. How do they affect the life on earth? (b) Describe the causes of eutrophication of a lake.

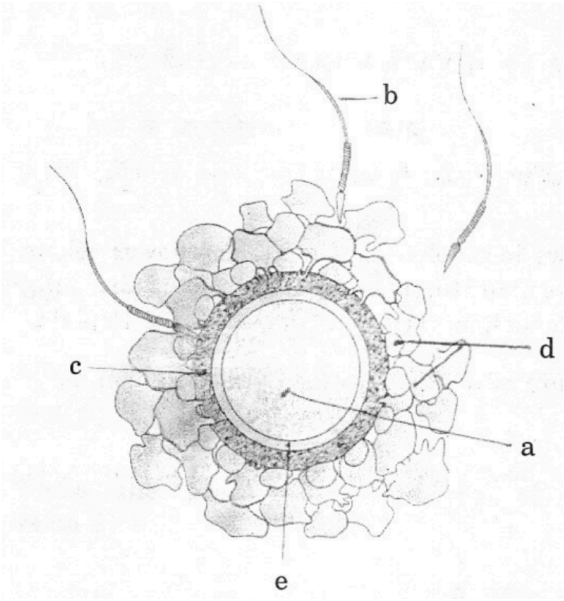
OR

28. (a) How does primary succession start in water and lead to the climax community? Explain. (b) Explain giving reasons why thermal power plants are not considered ecofriendly.

29. (a) How does microspore mother cell develop into mature pollen grain in angiosperms? (b) Describe the structure of a mature pollen grain and draw a labelled diagram of its two-celled stage.

OR

29. Study the illustration given below and answer the questions that follow.



(i) Identify 'a'. (ii) Name and state the function of 'c'. (iii) Identify 'd'. (iv) Explain the role of hormones in the formation and release of 'a'. (v) Draw a diagram of 'b' separately and label the parts – that helps its entry into 'a'; that carry genetic material; that helps in its movement.

30. (a) Snapdragon shows incomplete dominance for flower colour. Work out a cross and explain the phenomenon. How is this inheritance different from Mendelian pattern of inheritance? Explain. (b) Draw the structure of a tRNA charged with Methionine.

OR

30. Describe the Hershey-Chase experiment. Write the conclusion they arrived at after the experiment.

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