CBSE Class 12 Biology 2012 - Set 57/1

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. Why is banana considered a good example of parthenocarpy?

2. State two different roles of spleen in the human body.

3. A garden pea plant produced axial white flowers. Another of the same species produced terminal violet flowers. Identify the dominant traits.

4. Why is it desirable to use unleaded petrol in vehicles fitted with catalytic converters?

5. Where is acrosome present in humans? Write its function.

6. Write the name of the following: (a) The most common species of bees suitable for apiculture. (b) An improved breed of chicken.

7. Comment on the similarity between the wing of a cockroach and the wing of a bird. What do you infer from the above, with reference to evolution?

8. Mention the role of cyanobacteria as a biofertiliser.

Section B

9. (a) Draw a neat labelled diagram of a nucleosome. (b) Mention what enables histones to acquire a positive charge.

10. State one advantage and one disadvantage of cleistogamy.

11. (a) Where do the signals for parturition originate from in humans? (b) Why is it important to feed the newborn babies on colostrum?

12. (a) A recombinant vector with a gene of interest inserted within the gene of β-galactosidase enzyme, is introduced into a bacterium. Explain the method that would help in selection of recombinant colonies from non-recombinant ones. (b) Why is this method of selection referred to as 'insertional inactivation'?

13. Explain brood parasitism with the help of an example.

14. Give reasons for the following: (a) The human testes are located outside the abdominal cavity. (b) Some organisms like honey-bees are called parthenogenetic animals.

15. Name the plant source of ganja. How does it affect the body of the abuser?

OR

15. Name the two special types of lymphocytes in humans. How do they differ in their roles in immune response?

16. (a) Mention the cause and the body system affected by ADA deficiency in humans. (b) Name the vector used for transferring ADA-DNA into the recipient cells in humans. Name the recipient cells.

17. How did Ahmed Khan, plastic sacks manufacturer from Bangalore, solve the ever-increasing problem of accumulating plastic waste?

18. Name the bacterium that causes typhoid. Mention two diagnostic symptoms. How is this disease transmitted to others?

Section C

19. (a) Explain the phenomena of multiple allelism and co-dominance taking ABO blood group as an example. (b) What is the phenotype of the following: (i) I^Ai (ii) ii.

20. How does industrial melanism support Darwin's theory of Natural Selection? Explain.

21. (a) What is the programme called that is involved in improving success rate of production of desired hybrid and herd size of cattle? (b) Explain the method used for carrying this programme for cows.

22. Explain the function of each of the following: (a) Coleorhiza (b) Umbilical cord (c) Germ pores.

23. How is the amplification of a gene sample of interest carried out using Polymerase Chain Reaction (PCR)?

24. Trace the life-cycle of malarial parasite in the human body when bitten by an infected female Anopheles.

25. List the salient features of double helix structure of DNA.

OR

25. How are the structural genes activated in the lac operon in E. coli?

26. Alien species are highly invasive and are a threat to indigenous species. Substantiate this statement with any three examples.

27. (a) Tobacco plants are damaged severely when infested with Meloidogyne incognita. Name and explain the strategy that is adopted to stop this infestation. (b) Name the vector used for introducing the nematode specific gene in tobacco plant.

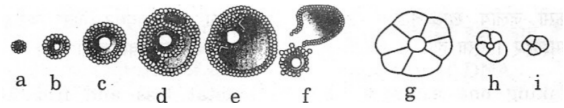
Section D

28. (a) Taking one example each of habitat loss and fragmentation, explain how are the two responsible for biodiversity loss. (b) Explain two different ways of biodiversity conservation.

OR

28. (a) What depletes ozone in the stratosphere? How does this affect human life? (b) Explain biomagnification of DDT in an aquatic food chain. How does it affect the bird population?

29. The following is the illustration of the sequence of ovarian events 'a' to 'i' in a human female:



(a) Identify the figure that illustrates corpus luteum and name the pituitary hormone that influences its formation. (b) Specify the endocrine function of corpus luteum. How does it influence the uterus? Why is it essential? (c) What is the difference between 'd' and 'e'? (d) Draw a neat labelled sketch of Graafian follicle.

OR

29. (a) Why is fertilisation in an angiosperm referred to as double fertilisation? Mention the ploidy of the cells involved. (b) Draw a neat labelled sketch of L.S. of an endospermous monocot seed.

30. Describe Frederick Griffith's experiment on Streptococcus pneumoniae. Discuss the conclusion he arrived at.

OR

30. (a) Explain a monohybrid cross taking seed coat colour as a trait in Pisum sativum. Work out the cross up to F2 generation. (b) State the laws of inheritance that can be derived from such a cross. (c) How is the phenotypic ratio of F2 generation different in a dihybrid cross?

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