CBSE Class 12 Biology 2018 - Set 57/3 - Compartment

Question Paper

Conducted by the Central Board of Secondary Education (CBSE)

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

General Instructions

(i) There are total 26 questions in five sections in the question paper. All questions are compulsory.

(ii) Section A contains questions number 1 to 5, very short answer type questions of one mark each.

(iii) Section B contains questions number 6 to 10, short answer type-I questions of two marks each.

(iv) Section C contains questions number 11 to 22, short answer type-II questions of three marks each.

(v) Section D contains question number 23, value based question of four marks.

(vi) Section E contains questions number 24 to 26, long answer type questions of five marks each.

(vii) There is no overall choice in the question paper, however, an internal choice is provided in one question of two marks, one question of three marks and all the three questions of five marks. In these questions, an examinee is to attempt any one of the two given alternatives.

Section A

1. Write the sex of a human having XXY chromosomes with 22 pairs of autosomes. Name the disorder this human suffers from.

2. Why do DNA fragments move towards the anode during gel electrophoresis?

3. How do monocytes act as a cellular barrier in humans to provide innate immunity?

4. Write one advantage and one disadvantage of cleistogamy to flowering plants.

5. Name one amino acid, which is coded by only one codon.

Section B

6. Why is the structure of an antibody molecule represented as H_2L_2? Name any two types of antibodies produced in a human body.

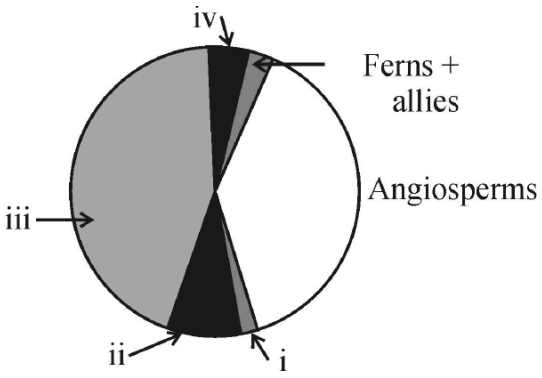
7. Differentiate between out-crossing and cross breeding.

OR

7. Why are microbes like Spirulina being produced on a commercial scale? Mention its two advantages.

8. A hemophilic father can never pass the gene for hemophilia to his son. Explain.

9. Identify the areas labelled i, ii, iii and iv in the pie chart given below representing the biodiversity of plants showing their proportionate number of species of major taxa.



10. (a) Why do organisms like algae and fungi shift from asexual mode of reproduction to sexual mode?

(b) What is a juvenile phase in organisms?

Section C

11. Name the three RNA polymerases found in eukaryotic cells and mention their functions.

OR

11. Explain the post transcriptional modifications the hn-RNA undergoes in eukaryotic cell.

12. Explain how Eli Lilly, an American company produced insulin by recombinant DNA technology.

13. What is biofortification? Mention the contribution of Indian Agricultural Research Institute towards it with the help of any two examples.

14. Explain the 'Ex-situ conservation' of Biodiversity. How is the in-situ conservation different from it?

15. Do you think apomixis can be compared with asexual reproduction? Support your answer, giving one reason. How is apomixis beneficial to farmers? Explain.

16. Why is DNA molecule considered as a better hereditary material than RNA molecule?

17. Explain three steps involved in polymerase chain reaction.

18. How can Hardy-Weinberg equilibrium be affected? Explain giving three reasons.

19. Baculoviruses are good example of biocontrol agents. Justify giving three reasons.

20. If the meiocyte of a maize plant contains 20 chromosomes, write the number of chromosomes in the endosperm and embryo of the maize grain and give reasons in support of your answer.

21. (a) What are transgenic animals?

(b) Name the transgenic animal having the largest number amongst all the existing transgenic animals.

(c) Mention any three purposes for which these animals are produced.

22. The three microbes are listed below. Name the product produced by each one of them and mention their use.

(a) Aspergillus niger

(b) Trichoderma polysporum

(c) Monascus purpureus

Section D

23. A national newspaper reported that a 50 metre high 'Sanitary landfill', the dumping site of city's garbage in one of the metro-cities crashed and caused heavy damage and disaster in and around the area. A couple of cars, two-wheelers and cattle were swept away in the nearby overflowing canal. Three persons including a young girl were crushed under the garbage and died.

(a) Write any two points that in your opinion could have caused this landfill crash.

(b) Mention any four preventive measures to be adhered to as a policy which could have avoided this accident.

(c) Write any two suggestions that you would like to give to the citizens so as to help in preventing such a disaster in future.

Section E

24. (a) Draw a diagram of the adult human female reproductive system and label the different:

(i) parts of fallopian tube

(ii) layers of uterus wall

(b) Explain the events during fertilization of an ovum in humans.

OR

24. (a) Draw a diagrammatic sketch of a transverse section of an anther of an angiosperm. Label its different walls and the tissue forming microspore mother cells.

(b) Describe the process of microsporogenesis upto the formation of a microspore.

(c) Write the function of 'germ pore' in a pollen grain of an angiosperm.

25. (a) Why does DNA replication occur in small replication forks and not in its entire length?

(b) Why is DNA replication continuous and discontinuous in a replication fork?

(c) State the importance of origin of replication in a replication fork.

OR

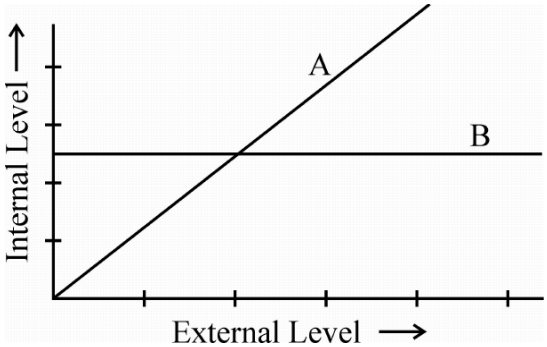
25. What is an operon? Explain the functioning of lac operon when in an open state.

26. (a) The graph given below represents the organisms response to temperature as an environmental condition.

(i) Which one of the two lines represents conformers and why?

(ii) What does the other line in the graph represent and why?

(b) Mention the different adaptations the parasites have evolved with, to be able to successfully complete their life cycles in their hosts.



OR

26. Draw the pyramids of biomass in sea and in a forest. Explain giving reasons why are the two pyramids different?

- End of Question Paper -