CBSE Class 12 Biology 2016 - Set 057-2

Question Paper

Conducted by the Central Board of Secondary Education (CBSE)

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

General Instructions

(i) This question paper contains **26 questions** in five sections. All questions are compulsory.

(ii) Section A: Questions 1 to 5 are Very Short Answer type questions of 1 mark each.

(iii) Section B: Questions 6 to 10 are Short Answer type I questions of 2 marks each.

(iv) Section C: Questions 11 to 22 are Short Answer type II questions of 3 marks each.

(v) Section D: Question 23 is a Value Based Question of 4 marks.

(vi) Section E: Questions 24 to 26 are Long Answer type questions of 5 marks each.

(vii) There is no overall choice. Internal choice is provided in one question of 2 marks, one question of 3 marks and all three questions of 5 marks. Attempt one of the two alternatives in each such question.

Section A

1. Write the probable differences in eating habits of *Homo habilis* and *Homo erectus*.

2. Mention two advantages for preferring CNG over diesel as an automobile fuel.

3. A male honeybee has 16 chromosomes whereas its female has 32 chromosomes. Give one reason.

4. Mention two objectives of setting up GEAC by our Government.

5. Mention the role of 'genetic mother' in MOET.

Section B

6. What is aminoacylation? State its significance.

7. Explain the relationship between CFC's and Ozone in the stratosphere.

OR

7. Why are sacred groves highly protected?

8. Gynoecium of a flower may be apocarpous or syncarpous. Explain with the help of an example each.

9. "Large scale cultivation of *Spirulina* is highly advantageous for human population." Explain giving two reasons.

10. Name a genus of baculovirus. Why are they considered good biocontrol agents?

Section C

11. (a) What do 'Y' and 'B' stand for in 'YAC' and 'BAC' used in Human Genome Project (HGP). Mention their role in the project.

(b) Write the percentage of the total human genome that codes for proteins and the percentage of discovered genes whose functions are known as observed during HGP.

(c) Expand 'SNPs' identified by scientists in HGP.

12. Differentiate between divergent and convergent evolution. Give one example of each.

13. (a) List any four characteristics of an ideal contraceptive.

(b) Name two intrauterine contraceptive devices that affect the motility of sperms.

OR

13. (a) How does a farmer use the dormancy of seeds to his advantage?

(b) What advantages a seed provides to a plant?

14. (a) It is generally observed that the children who had suffered from chicken-pox in their childhood may not contract the same disease in their adulthood. Explain giving reasons the basis of such an immunity in an individual. Name this kind of immunity.

(b) What are interferons? Mention their role.

15. (a) Write the two limitations of traditional breeding technique that led to promotion of micro propagation.

(b) Mention two advantages of micro propagation.

(c) Give two examples where it is commercially adopted.

16. Differentiate between primary and secondary succession. Provide one example of each.

17. Predation is usually referred to as a detrimental association. State any three positive roles that a predator plays in an ecosystem.

18. Explain enzyme-replacement therapy to treat adenosine deaminase deficiency. Mention two disadvantages of this procedure.

19. (a) How do organic farmers control pests? Give two examples.

(b) State the difference in their approach from that of conventional pest control methods.

20. (a) Why must a cell be made 'competent' in biotechnology experiments? How does calcium ion help in doing so?

(b) State the role of 'biolistic gun' in biotechnology experiments.

21. (a) Name the selectable markers in the cloning vector pBR322? Mention the role they play.

(b) Why is the coding sequence of an enzyme β-galactosidase a preferred selectable marker in comparison to the ones named above?

22. What is a test cross? How can it decipher the heterozygosity of a plant?

Section D

23. A large number of married couples the world over are childless. It is shocking to know that in India the female partner is often blamed for the couple being childless.

(a) Why in your opinion the female partner is often blamed for such situations in India? Mention any two values that you as a biology student can promote to check this social evil.

(b) State any two reasons responsible for the cause of infertility.

(c) Suggest a technique that can help the couple to have a child where the problem is with the male partner.

Section E

24. (a) Name the two growth models that represent population growth and draw the respective growth curves they represent.

(b) State the basis for the difference in the shape of these curves.

(c) Which one of the curves represent the human population growth at present? Do you think such a curve is sustainable? Give reason in support of your answer.

OR

24. (a) Taking an example of a small pond, explain how the four components of an ecosystem function as a unit.

(b) Name the type of food chain that exists in a pond.

25. (a) Explain the menstrual phase in a human female. State the levels of ovarian and pituitary hormones during this phase.

(b) Why is follicular phase in the menstrual cycle also referred as proliferative phase? Explain.

(c) Explain the events that occur in a graafian follicle at the time of ovulation and thereafter.

(d) Draw a graafian follicle and label antrum and secondary oocyte.

OR

25. (a) As a senior biology student you have been asked to demonstrate to the students of secondary level in your school, the procedure(s) that shall ensure cross-pollination in a hermaphrodite flower. List the different steps that you would suggest and provide reasons for each one of them.

(b) Draw a diagram of a section of a megasporangium of an angiosperm and label funiculus, micropyle, embryosac and nucellus.

26. Give a genetic explanation for the following cross. When a tall pea plant with round seeds was crossed with a dwarf pea plant with wrinkled seeds then all the individual of F_1-populations were tall with round seeds. However selfing among F_1-population led to a 9 : 3 : 3 : 1 phenotypic ratio.

OR

26. (a) Describe the series of experiments of F. Griffith. Comment on the significance of the results obtained.

(b) State the contribution of MacLeod, McCarty and Avery.

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