

Vanshika

**CAMBRIDGE SCHOOL SRINIVASPURI NEW DELHI
HALF YEARLY EXAMINATION 2017-2018**

**BIOLOGY
CLASS - 12**

SET - A

Max. Marks : 70

Time : 3hrs

General Instructions:

1. All questions are compulsory
2. The question paper consists of five sections A, B, C, D and E. Section A consists of 5 questions of 1 mark each, Section B contains 5 questions of 2 marks each, Section C contains 12 questions of 3 marks each, Section D has 1 value based question of 4 marks whereas Section E contains 3 questions of 5 marks each.
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 all three questions of 5 marks weightage.

SECTION - A

1. Mention the unique feature with respect to flowering and fruiting in bamboo species.
2. Name the enzyme and state its property that is responsible for continuous and discontinuous replication of the two strands of a DNA molecule.
3. Name an autosomal dominant and one autosomal recessive Mendelian disorder in humans.
4. State the functions of mast cells in an allergy response.
5. State the economic value of Apis indica.

SECTION - B

6. Why are the plants raised through micro-propagation termed as somaclones? Mention two advantages of this technique.

7. Highlight the role of thymus as a lymphoid organ. Name the cells that are released from the above mentioned gland.

OR

Name the plant source of the drug popularly called 'smack'. How does it affect the body of the abuser?

8. What do oral pills contain and how do they act as effective contraceptives?

9. Why is DNA considered a better genetic material?

10. Identify the following pairs as homologous or analogous:

- i) Sweet potato and potato.
- ii) Eye of octopus and eye of mammals.
- iii) Thorns of Bougainvillea and tendrils of Cucurbita.
- iv) Forelimbs of bat and whale.

SECTION - C

11. Describe the three ways by which Natural selection can effect the frequency of a heritable trait in a population.

12. Unambiguous, universal and degenerate are some of the terms used for the genetic code. Explain the salient features of each of them.

13. Name the cells HIV attacks first when it gains entry into a human body. How does this virus replicate further to cause immunodeficiency in the body?

14. Name the two different categories of microbes naturally occurring in sewage water. Explain their role in cleaning sewage water into usable water.

15. (a) Name the stage of Plasmodium that gains entry into the human body.

(b) Trace the stages of Plasmodium in the body of female Anopheles after its entry.

(c) Explain the cause of periodic recurrence of chill and high fever during malaria attack in humans.

16. Who proposed the chromosomal theory of inheritance? Point out any two similarities in the behavior of chromosomes and genes.

17. Draw a labelled sketch of a fully developed embryo sac.

Or

Draw a labeled sketch of the L.S of the maize grain.

18. (a) Give one example each of albuminous and non-albuminous seeds.

(b) Name the parts of the ovule and the embryo sac of an angiosperm that develops into:

1 Perisperm 2 Seed coat

3 Endosperm and 4 Embryonal axis.

19. Describe the Lactational Amenorrhea method of birth control.

20. (a) Name any two copper releasing IUDs.

(b) Explain how they act as effective contraceptives in human females.

21. Name the major types of RNAs and explain their role in the process of protein synthesis in a prokaryote.

22. Explain adaptive radiation with the help of a suitable example.

SECTION - D

23. Women are often blamed for producing female children. Consequently, they are ill treated and ostracized. How will you address this issue scientifically, if you were to conduct an awareness programme to highlight the values involved?

SECTION - E

24. (a) Explain the process of DNA replication with the help of a schematic diagram.
(b) In which phase of the cell cycle does replication occur in eukaryotes? What would happen if cell division is not followed after DNA replication?

OR

Describe how the lac operon operates, both in the presence and absence of an inducer in E.coli.
25. A flower of brinjal plant following the process of sexual reproduction produces 360 viable seeds. Answer the following questions giving reasons:

- How many ovules are minimally involved?
- How many megaspore mother cells are involved?
- What is the minimum number of pollen grains that must land on stigma for pollination?
- How many male gametes were involved in the above case?
- How many microspore mother cells must have undergone reduction division prior to dehiscence of anther in the above case?

OR

- Explain the phenomenon of double fertilization.
- Draw a labeled diagram of a typical anatropous ovule.

26. (a) Name the technology that has helped the scientists to propagate on large scale, the desired crops in short duration. List the steps carried out to propagate the crop by the said technique.
(b) How are somatic hybrids obtained?

OR

With advancements in genetics, molecular biology and tissue culture, new traits have been incorporated into crop plants. Explain the main steps in breeding a new genetic variety of a crop.