AMRITA VIDYALAYAM

AMRITA PRE BOARD EXAMINATION 1 - 2018 - '19

Class : XII **Marks : 70**

Time : 3 hrs

BIOLOGY (044)

GENERAL INSTRUCTIONS:

1. All questions are compulsory.
2. This question paper consists of five sections - A, B, C, D and E.
3. Section A consists of very short answer questions of 1 mark each.
4. Section B consists of short answer questions of 2 marks each.
5. Section C consists of also short answer questions of 3 marks each.
6. Section D includes a value based question of 4 marks.
7. Section E consists of long answer questions of 5 marks each.
8. 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. A student has to attempt only one of the alternatives in such questions.

SECTION - A

1. Name the protozoan parasite that causes amoebic dysentery in humans. How is this disease transmitted to others?
2. What is biopiracy?
3. Mention the role of 'genetic mother' in MOET.
4. Name the first transgenic cow. What is the advantage?
5. Mention the characteristic feature and a function of zoospore in some algae.

SECTION - B

6. a) Describe lactational amenorrhea method of birth control.
   b) Expand GIFT.
7. a) What is frame shift mutation?
   b) Name the disease caused by point mutation and the amino acid changed during this mutation.
8. How do bioreactors help in the production of recombinant protein?
9. How do organisms manage with stressful conditions existing in their habitat for short duration? Explain with the help of an example.
10. How do algal bloom destroy the quality of a fresh water body? Explain.

    OR

    Differentiate between male and female heterogamety.

SECTION - C

11. What is adaptive radiation? When is adaptive radiation referred as convergent evolution? Explain with examples.
12. At what stage does plasmodium enter into the human body? Write the different stages of its life cycle in the human body.
13. a) Name the selectable markers in the cloning vector pBR322. Mention the role they play.
    b) Why is the coding sequence of an enzyme (B-galactosidase) a preferred selectable marker in comparison to the ones named above?
14. What are interferons? How do they help in developing resistance to infection?
15. a) Expand BOD.

b) At a particular segment of a river, near a sugar factory, the BOD is much higher than normal level. What does it indicate?

c) What will happen to the living organisms in this part of the river?

16. a) What is meant by germplasm collection? What are its benefits?

b) What are the major advantages of producing plants by micropropagation?

17. Name the blank spaces a, b, c, d, e and f in the table given below.

S.No	Organism	Bioactive molecule	Use
1.	*Monascus purpureus*	a	b
2.	c	d	Antibiotic
3.	e	Cyclosporin A	f

18. How did the process of RNA interference help to control the nematode from infecting roots of tobacco plants?

19. With a neat diagram explain the 7 celled, 8 nucleate nature of the female gametophyte.

20. Describe the process of parturition in humans.

21. Why are human females rarely haemophilic? Explain how do haemophilic patients suffer.

22. a) Define climax community. How does a sere differ from a seral community?

b) Differentiate between primary and secondary succession.

OR

a) How does the Hardy-Weinberg's expression ($p^2 + 2\ pq + q^2$) = 1) explain that genetic equilibrium is maintained in a population?

b) List any four factors that can disturb the genetic equilibrium.

SECTION - D

23. A forest that is rich in biodiversity sees a decline in the animal population and clearing of a large part of the forest. The government declares it as a biodiversity hotspot and the forest regains its species richness in few years.

Answer the following questions based on the above information.

a) Which values are being promoted in the above case?

b) Suggest some ways in which you can contribute to this concern.

c) What would have been the effect if the forest was not declared as a biodiversity hotspot?

d) In your opinion what is the significance of sacred groves in your locality?

SECTION - E

24. Explain the experiment performed by Griffith on *Streptococcus pneumonia*. What did he conclude from the experiment?

a) Name the scientists who followed Griffith's experiment.

b) What did they conclude?

OR

What is AIDS? How does HIV make a person immune-deficient? Draw the life cycle of HIV.

25. a) Why should biological control of pests and pathogens be preferred to the conventional use of chemical pesticides? Explain how the following microbes act as biocontrol agents.

(i) *Bacillus thringiensis* (ii) Nucleopolyhedrovirus

b) What are methanogens? Name the organisms they represent and the role they play.

OR

a) Name the stage in the cell where DNA replication occurs.

b) Explain the mechanism of DNA replication.

c) Why is DNA replication said to be semiconservative?

26. a) Briefly describe the phases of oogenesis in human female.

b) Draw a sectional view of human ovary and label different follicular stages, ovum and corpus luteum.

OR

In a dihybrid cross, white eyed, yellow bodied female Drosophila was crossed with red, brown bodied male Drosophila. The cross produced 1.3 percent recombinants and 98.7 eyed percent progeny with parental type combinations in the F2 generation. Analyze the above observation and compare with the Mendelian dihybrid cross.