



**ANANDALAYA**  
**FIRST PREBOARD EXAMINATION**  
Class : XII

Subject : BIOLOGY  
Date : 07/12/2015

M.M : 70  
Time : 3 Hours

**General Instructions**

1. All questions are compulsory. There are 26 questions in all.
2. This question paper has five sections: Section A, Section B, Section C, Section D and Section E.
3. Section A contains five questions of one mark each, Section B contains five questions of two marks each, Section C contains twelve questions of three marks each, Section D contains one value based question of four marks and Section E contains three questions of five marks each.
4. There is no overall choice. However, an internal choice has been provided in one question of two marks, one question of three marks and all the three questions of five marks weightage. You have to attempt only one of the choices in such questions.
5. Wherever necessary, the diagrams drawn should be neat and labelled.

**Section A**

1. Why are disposable needles widely used these days? 1
2. Name the enzyme and its property that is responsible for continuous and discontinuous replication of the two strands of a DNA molecule. 1
3. Give an example for convergent evolution. 1
4. What is the importance of MOET? 1
5. Cellulase enzyme is used widely while isolating DNA from plant cells. What is the reason? 1

**Section B**

6. Geitonamous flowers are genetically autogamous but functionally cross pollinated. Justify. 2
7. What is the function of chorionic villi? How do they develop? 2

OR

What is the function of male accessory glands?

8. In a cross between two tall Pea plants some of the offsprings produced were dwarfs. Show with the help of Punnet square how this is possible. 2
9. Veena took out a blanket in a hill station hotel and started sneezing and then wheezing. What is such a response called? What first-aid would you suggest during such a situation? 2
10. What are Bioreactors? Which are the common types used? 2

**Section C**

11. Mention the cause of ADA deficiency in humans. What is its function in human? Which is the latest curative method used? 3
12. Expand the following and mention one application of each. 3  
(a) PCR (b) ELISA (c) GMC
13. (a) Mention the difference in the mode of action of exonuclease and endonuclease 3  
(b) How does restriction endonuclease function?

14. Draw a diagram of the microscopic structure of human sperm and label the following parts. Also mention their functions. (a) acrosome (b) nucleus (c) middle piece. 3
15. With the help of suitable examples explain the effect of anthropogenic actions on organic evolution. 3
16. Work out the following problem. A mother with blood group A homozygous and father with blood group B homozygous has a daughter. What is the possible blood group of their daughter? What kind of inheritance does the human blood group genes follow? 3
17. Describe the structure of a RNA polynucleotide chain having four different types of nucleotides. 3
18. Differentiate between inbreeding and out-breeding in cattle. State one advantage and disadvantage for each one of them. 3
19. Name the bioactive molecules produced by *Trichoderma polysporum* and *Monascus purpureus*? Why is the fruit juice purchased from the market clearer than the homemade juice? 3
20. Why are transgenic animals called so? Explain the role transgenic animals in vaccine safety and in Biological products with the help of an example each. 3
21. Explain the anthropogenic activities that lead to desertification. 3

OR

How does algal bloom destroy the quality of water in a fresh water body?

22. Explain mutualism with the help of two examples. How is it different from commensalism? 3

#### Section D

23. A child suffering from Thalassaemia is born to a normal couple. But the mother is being blamed by the family for delivering the sick child. 4
- (a) What is Thalassaemia?
- (b) How would you counsel the family regarding its cause and inheritance?
- (c) List the values your counselling can propagate in the family.

#### Section E

24. A. Draw a diagrammatic sectional view of a mature anatropous ovule and label the following parts in it: The part 5
- (a) that grows into seed coat
- (b) that develops into an embryo after fertilisation
- (c) that develops into an endosperm (d) that attaches the ovule to the placenta.
- (e) through which the pollen tube gains entry into the embryosac.

OR

- a) Draw a diagrammatic sectional view of the female reproductive system of human and label four parts.
- b) Explain the pituitary and the ovarian hormones in menstrual cycle in human females.
25. Describe the sexual and asexual phases in the life cycle of Plasmodium that causes malaria in human. 5

OR

- (a) What is plant breeding? List the two steps the classical plant breeding involves.
- (b) How has the mutation breeding helped in improving crop varieties? Give one example for a successful mutation breeding.
- (c) How has breeding programs helped in improving the public nutritional health? Support your answers with examples.

26. a) List the attributes that a population has and not an individual organism. 5
- b) What is population density? Explain any 3 different ways the population density can be measured, with help of an example each.

OR

"It is often said that the pyramid of energy is always upright. On the other hand, the pyramid of biomass can be both upright and inverted". Explain with the help of examples and sketches.