

RESIDENTIAL SCHOOL
FIRST TERMINAL EXAMINATION

STD – XII

BIOLOGY

Time – 3Hrs

Marks – 70

PART – I

1 .a) Give brief answers :

[4]

- i). What is the biological significance of golden rice production ?
- ii). Name the gene responsible for Bt. toxin.
- iii). Why is the phenomenon of flowering in bamboo said to be unusual ?
- iv). Why hybrid seeds have to be raised every year ?

b) Choose the correct answer:

[2]

i). A tall hybrid plant was grown in nutrient deficient soil and remained dwarf. When it is crossed with dwarf plant then

- 1) all hybrid plants are dwarf
- 2) all hybrid plants are tall
- 3) 50% tall and 50% dwarf
- 4) 75% tall and 25% dwarf

ii). Taq polymerase is obtained from

- 1) *Taq aquaticus*
- 2) *Thermus aquaticus*
- 3) *Trichoderma reesi*
- 4) *Thermus reesi*

iii). Germplasm includes

- 1) cultivated improved varieties
- 2) varieties which are no more in cultivation
- 3) wild plants
- 4) all of these

iv). The chromosome number in the endosperm of onion is

- 1) 24
- 2) 27
- 3) 16
- 4) 30

iii). Give reasons:

[2]

- 1) Disease free plants can be obtained from diseased plants.
- 2) A person allergic to pulses was advised to take a capsule of Spirulina daily.

iv). Give the best known contributions of the following: [2]

1) Sutton and Boveri 2) Jacob, Monad and Lwoff

2. What are molecular scissors ? What is their role in rDNA technology? [2]

3. Explain the contrivances that prevent self pollination. [2]

OR

Explain the steps involved in artificial hybridization.

4. In a particular plant species , majority of the plant species bear purple flowers. [2]

Very few plants bear white flowers. No intermediate colours are observed.

If you are given a plant bearing purple flowers, how would you ascertain that it is a pure breed for that trait. Explain.

5. Write a short note on biopiracy ,giving suitable examples. [3]

6. Describe the development of a dicot embryo. [3]

OR

Describe the development of female gametophyte.

7. A cross between a normal couple resulted in a son who was haemophilic [3]

and a normal daughter. In course of time, when the daughter was married

to a normal man, to their surprise the grandson was also haemophilic.

Make a pedigree chart of the family. Give the genotype of all the members.

8. a) (i) How has biotechnology been useful in controlling nematode infection in [5]
plants. Explain the technique involved in this process.

(ii) Explain how restriction enzymes are named taking EcoRI as an example.

OR

b) (i) Describe the various steps involved in plant breeding.

(ii) What is protoplast fusion? Give an example of a plant developed this way.

9.a) (i) Draw a labelled diagram showing T.S. of an anther. [5]

(ii) Explain polygenic inheritance with reference to skin colour in humans.

Give necessary Punnett square.

OR

b) (i) Draw a diagram showing pBR322.

(ii) Explain the isolation of gene of interest by electrophoresis

PART II

1. Answer the following questions briefly and to the point (4x1=4)
 - i. What do you mean by central dogma of molecular biology?
 - ii. What is the significance of progesterone-estrogen combination as a contraceptive measure?
 - iii. How amniocentesis help in detecting genetic defects?
 - iv. What is the term used for the proteins that are released by the cells making them less susceptible?
2. Give reason (2x1=2)
 - i. *Drosophila* is the ideal material for genetic study.
 - ii. Placenta has endocrine action.
3. Expand the following terms (2x1=2)
 - i. SSBP
 - ii. PID
4. Define the following terms (2x1=2)
 - i. Metastasis
 - ii. Aneuploidy
5. i. Draw a labelled diagram of t rna (2)

OR

ii. Draw a labelled diagram of HIV virus
6. Mention any one symptom of elephantiasis: Name its causative agents. (2)
7. Write two significant differences between humoral immunity and cell mediated immunity (2)
8. Explain MOET (2)
9. Explain the process of formation of blastocyst from zygote with the help of diagram. (3)
10. Write the graphic outline of life cycle of *Plasmodium* (3)
11. Chromosome sets of three individuals are given below (3)

44A+X, 45A+XX, 44A+X

 - a. Identify and write the name of chromosomal abnormalities in the above listed chromosome sets
 - b. Write the reason for each chromosomal abnormalities

12. Explain any three Assisted Reproductive Technologies in humans

13. i. Explain Hershey-Chase experiment with the help of diagram. What was proved through this experiment?

ii. Why did the mice die when heat killed S cells and live R cells were injected together?

OR

- i. Explain the physio-chemical events during fertilisation
- ii. Explain the various stages of parturition.