

Full Marks : 70

Pass Marks : 21

Time : Three hours

*The figures in the margin indicate full marks
for the questions.*

PART-I (BOTANY)

MARKS - 35

Page No. 1 - 6

PART-II (ZOOLOGY)

MARKS - 35

Page No. 7 - 11

1. What is meant by Clone ? 1

2. Why grafting is not possible in monocot plants ? 1

3. Name the edible part of an apple. 1

4. Write the scientific name of the microorganism used to produce ethanol. 1

5. What is missing link ? Describe briefly with an example. 1+1=2

6. Mention *four* objectives for improving the nutritional quality of crops by the process of biofortification. 2

Or / অথবা

Write on the importance of biopiracy. 2

7. Write a brief note on Biochemical Oxygen Demand. 2

OR/ অথবা

What are Antibiotics ? Name *two* microorganisms used to produce antibiotics.

8. Write short note on the following : (*any one*) 2

- (i) Gene gun
- (ii) Tools of genetic engineering
- (iii) Gene cloning

9. What is Single Cell Protein (SCP) ? Name *two* algae used to produce SCP. 2

OR/ অথবা

Write an account on the role of microbes in biogas production.

10. Write scientific name and utility of the following plants : (*any two*)

1+1=2

- (a) Teak
- (b) Indian ginseng
- (c) Chinchona
- (d) Sissoo

11. Write briefly the chemical origin of life on the earth. 3

Or / অথবা

“Survival of the fittest”, explain the statement with the help of Darwin’s theory. 3

12.

Write a note on adaptation of plants to water scarcity.

3

13. Define fermentation and describe briefly how alcohol is produced in this process. 1+2=3

What are biopesticides? Write briefly on biopesticides with examples.

1+2=3

14. What is double fertilization? Describe the process with diagrams from the stage of megaspore formation to zygote formation.

1+4=5

Part-II (Zoology)

1. Fill in the blanks : (*any two*)

1×2=2

- (a) Anterior part of sperm is called _____.
- (b) Archaeopteryx is a connecting link between reptiles and _____.
- (c) Genetic constitution of an organism is called _____.
- (d) Cancer causing viruses are known as _____.

2. Answer *any two* :

1×2=2

- (a) Why sperm contain mitochondria?

(b) What are Okazaki fragments ?

(c) What is the first infective stage of malarial parasite in man ?

(d) What is transgenic organism ?

3. Answer *any four* :

2×4=8

(a) Describe the formation of Placenta during pregnancy.

(b) Why coacervates were called primitive cell ?

(c) What do you mean by adaptive radiation ?

(d) Write the various components of immune system.

(e) Write the various causes of water pollution.

(f) What are the factors of population growth ?

4. Write differences between : (*any two*)

2×2=4

(a) Homologous organ and analogous organ

(b) Linkage and crossing over

(c) Vaccination and immunisation

(d) Convergent evolution and divergent evolution

5. Draw a neat labelled diagram of a human sperm. 2+1=3

Or / অথবা

Diagrammatically express the Watson-Crick's semiconservative models of DNA replication. 3

6. What are sexually transmitted diseases? Write its various types of preventive measures. 1+2=3

7. Describe the Mendel's laws of inheritance. 5

8. What is ecological pyramid? Explain different types of ecological pyramid with diagram. 2+3=5