

**2019
BIOLOGY**

Total marks : 70

Time : 3 hours

General instructions :

- i) Approximately 15 minutes is allotted to read the question paper and revise the answers.
- ii) All questions are compulsory. Marks are indicated against each question.
- iii) The question paper consists of two parts – Part A and Part B.
Each part contain 14 questions.
- iv) Internal choice has been provided in some questions.
- v) Write the answers of Part A and Part B in separate answer books.
Marks shall not be awarded if the answers of both the Parts are written in one book nor marks awarded if answers of Part A are written in the answer book of Part B and vice-versa.

N.B: Check that all pages of the question paper is complete as indicated on the top left side.

PART - A

1. Vegetative propagation by bulbils is found in 1
 (a) *Begonia* (b) *Dioscorea*
 (c) Rose (d) *Bryophyllum*
2. Ubisch bodies are secreted by 1
 (a) tapetum (b) exine
 (c) microspore mother cell (d) endothecium
3. Which one of the following does not follow the central dogma of molecular biology? 1
 (a) Pea (b) *Mucor*
 (c) *Chlamydomonas* (d) HIV
4. Somatic hybridization can be done by 1
 (a) protoplast fusion (b) cell culture
 (c) haploid anther (d) pollen culture
5. A healthy aquatic ecosystem has a D.O content of 1
 (a) 1600 mg/Lt (b) 1000 mg/Lt
 (c) 1400 mg/Lt (d) 400 mg/Lt

6. Write two points of differences between anemophilous and entomophilous flowers. 2
7. What is gross primary productivity? In what unit is it expressed? 2
8. Write two effects of peroxyacetyl nitrate (PAN). 2
9. Draw a neat labelled diagram of T.S of mature anther. 3
10. a. List the raw materials and its functions involved in protein synthesis. 3
Or
b. Give six essential features of genetic code.
11. What is plant tissue culture? Write its two applications. 3
12. a. Explain the process of replication of DNA with the help of a suitable diagram. 5
Or
b. Explain the functioning of Lac-Operon system with the help of a diagram.
13. a. Explain the processes involved in Recombinant DNA technology. 5
Or
b. What is Polymerase Chain Reaction (PCR)? Explain in detail the various steps involved in PCR.
14. a. Discuss the various strategies of ex-situ conservation. 5
Or
b. Describe the major causes of biodiversity loss.

PART – B

1. Mammary glands are modified 1
(a) sweat glands (b) lacrymal glands
(c) sebaceous glands (d) endocrine glands
2. The permissible use of the technique amniocentesis is for 1
(a) detecting sex of the unborn foetus
(b) artificial insemination
(c) transfer of embryo into the uterus of a surrogate mother
(d) detecting any genetic abnormality

3. Haemophilia is a 1
(a) deficiency disorder (b) Y-linked disorder
(c) X-linked disorder (d) autosomal sex disorder
4. Passive immunity can be obtained by injecting 1
(a) antibodies (b) antigens
(c) antibiotics (d) vaccination
5. These parasites cannot survive without host : 1
(a) Facultative (b) Obligate
(c) Brood (d) Hyper parasites
6. What are test cross and back cross? 2
7. When is tumour referred to as malignant? 2
8. What is meant by bioethics? Mention one bioethical concern. 2
9. Name three transgenic micro organisms and their application. 3
10. a. What is incomplete dominance? Explain the inheritance pattern of incomplete dominance in 4 O'clock plant. 3
Or
b. Explain the three types of natural selection.
11. Describe briefly the biological effects of light on animal reproduction. 3
12. a. Define oogenesis. Explain the stages of oogenesis. 5
Or
b. Briefly explain the natural methods and surgical methods of birth control.
13. a. What is Human Genome Project? Mention any four goals of HGP. 5
Or
b. Bring out the differences between Darwinism and Neodarwinism.
14. a. What is allergy? Describe the different forms of allergy and the treatment available. 5
Or
b. What is biogas? What are the advantages of biogas?