

**2016  
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 leaves is found in which of the following plant? **1**  
(a) Oxalis (b) Pineapple  
(c) Bryophyllum (d) Mint
2. Region of a gene that contain the information necessary to form a protein is **1**  
(a) Promoter gene (b) Inducer  
(c) Intron (d) Exon
3. The process of breeding crops with higher levels of vitamins and minerals is referred to **1**  
(a) Nutritional quality (b) Biofortification  
(c) Biological magnification (d) Mineralization
4. Eutrophication leads to the death of fishes due to **1**  
(a) Increased O<sub>2</sub> content (b) Increased algal content  
(c) Decreased O<sub>2</sub> content (d) Decreased algal content
5. The innermost layer of anther wall is called **1**  
(a) Epidermis (b) Endodermis  
(c) Endothecium (d) Tapetum

6. The process of fertilization in flowering plants is referred to as double fertilization. Give reason. 2
7. Define hotspot. What are the criteria for determining a hotspot? 2
8. What is acid rain? Mention its one effect. 2
9. Draw a neat labelled diagram of a matured embryo sac. 3
10. **a.** Differentiate between Deoxyribonucleic acid and Ribonucleic acid. 3  
**Or**  
**b.** Distinguish between leading and lagging strands of DNA replication.
11. Mention the basic methods used for micro propagation. 3
12. **a.** What is transcription? Explain the process of transcription. 5  
**Or**  
**b.** What is Operon? Explain the working principle of Lac Operon.
13. **a.** Explain the tools needed for genetic engineering. 5  
**Or**  
**b.** Explain the various steps involved in rDNA technique.
14. **a.** Describe the various stages of succession in aquatic environment. 5  
**Or**  
**b.** What is noise pollution? Give a detail account of the sources and effects of noise pollution.

### PART –B

1. The sperm gets mature in 1  
 (a) Testes (b) Leydig cell  
 (c) Epididymis (d) Vasdeferens
2. Which of the following is an IUCD? 1  
 (a) Copper T (b) Oral pills  
 (c) Diaphragm (d) Tubectomy
3. Lamarckism was based on 1  
 (a) Natural selection (b) Survival of the fittest  
 (c) Inheritance of acquired character (d) Mutation

4. Humoral immune response is performed by 1  
(a) Lymph nodes (b) B-lymphocyte  
(c) T-lymphocyte (d) Spleen
5. Another term for cold blooded animal is 1  
(a) Endotherm (b) Ectotherm  
(c) Homoiotherm (d) Thermoregulator
6. What are the symptoms of Klinefelter's syndrome? 2
7. How do anaerobic sludge digesters help? 2
8. What is insulin? Mention its functions. 2
9. What is sex-linked inheritance? Explain the inheritance of colour blindness in the offsprings, if a carrier female marries a normal male. 3
10. a. What is biopiracy? How are industrialized nations exploiting the bioresources? 3  
**Or**  
b. What are biofertilisers? Mention any two advantages of biofertilisers.
11. Explain the age-distribution with reference to the population growth. 3
12. a. Explain the process of fertilization with diagram. 5  
**Or**  
b. What is meant by STD's? Explain four such diseases.
13. a. Explain Mendel's law of independent assortment with the hybrid cross of pea plant. 5  
**Or**  
b. Describe the Miller's and Urey's experiment for organic synthesis. Draw a neat labelled diagram of the apparatus set up by them.
14. a. What is a pathogen? Describe the disease caused by female *Anopheles* mosquito. 5  
**Or**  
b. Explain the causes, signs, symptoms, mode of transmission of HIV/AIDS and measures to prevent it.

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