

SIXTH SEMESTER B.A./B.Sc. DEGREE EXAMINATION, MARCH 2020  
(CUCBCSS—UG)

## Zoology

## ZOL 6B 14—BIOTECHNOLOGY, MICROBIOLOGY AND IMMUNOLOGY

Time : Three Hours

Maximum : 80 Marks

## Part A

I. One word questions. Answer all questions. Each question carries 1 mark :

- 1 Enzyme that joins two DNA fragments is called \_\_\_\_\_.
- 2 Which nucleotide is used for chain termination in Sanger's method of DNA sequencing ?
- 3 In Bt cotton, 'Bt' indicates \_\_\_\_\_.
- 4 Extraction of metals from the ores through the use of living organism is called \_\_\_\_\_.
- 5 Protein shell of virus is called \_\_\_\_\_.
- 6 Give one example for natural media.
- 7 Causative agent for malaria.
- 8 Which WBC increases in allergy ?
- 9 A small molecule that stimulates the production of antibody molecules only when combined to a larger-carrier molecule is called \_\_\_\_\_.
- 10 Write the full form of ELISA.

(10 × 1 = 10 marks)

## Part B

II. Short answer questions. Answer any *ten* questions. Each question carries 2 marks :

- 11 Why Taq polymerase is used in PCR ?
- 12 Give any *two* examples for systemic autoimmune diseases.
- 13 What are endogenous antigens ?
- 14 What are single cell proteins ?
- 15 Write short notes on viroids.
- 16 What are monoclonal antibodies ?

Turn over

- 17 Write a short note on YAC.
- 18 What is the role of reverse transcriptase enzyme genetic engineering ?
- 19 What is molecular farming ?
- 20 What is biofiltration ?
- 21 Write short notes on attenuated vaccines.
- 22 Name any *two* diseases caused by virus in humans.

(10 × 2 = 20 marks)

### Part C

*Paragraph questions. Answer any five questions.  
Each question carries 6 marks.*

- 23 Describe the structure of a typical bacterium.
- 24 Give an account on the effects of environmental factors on microbial growth.
- 25 With suitable examples write a detailed account on autoimmune diseases.
- 26 Give an account on antigen - antibody reactions.
- 27 With suitable diagram describe the structure of a typical antibody.
- 28 Give an account on different types of viruses, based on genome and host.
- 29 Explain hybridoma technology.
- 30 Write a short essay on bioremediation.

(5 × 6 = 30 marks)

### Part D

*Essay questions. Answer any two questions.  
Each question carries 10 marks.*

- 31 With suitable illustrations explain the steps involved in recombinant DNA technology. Add a note on the various enzymes employed in genetic engineering.
- 32 Give an account on normal micro flora of human body. Write the causative agents, symptoms and treatment of two diseases each, caused by bacteria, viruses, and protozoans.
- 33 Give a detailed account on cells and organs of immune system.
- 34 Explain the methodology involved and applications of DNA fingerprinting.

(2 × 10 = 20 marks)