

Roll No.....

B

**3022**

**M.Sc. (Semester I) EXAMINATION, 2018**

**ZOOLOGY**

Fourth Paper

(Immunology and Biotechnology)

Time allowed : Three hours

Maximum marks : 50

*Note : Syllabus of each paper is divided into three units. The question paper is divided into three parts: Part-A, Part-B and Part-C.*

*Part-A(10 marks) : Part-A is compulsory and contains 10 questions. At least three questions will be set from each unit and each question carries 1 mark (50 words each).*

*Part-B (10 marks) : Part-B is compulsory and contains five questions, taking at least one question from each unit. Candidate is required to attempt*

*all 5 questions. Each question carries 2 marks (100 words each).*

*Part-C (30 marks) : 6 questions will be set taking 2 from each unit. Candidate is required to attempt 3 questions, taking 1 from each unit. Each question carries 10 marks. (400 words each).*

Part-A

1. Define immune system.
2. Name any two lymphoid organs.
3. What is innate immunity ?
4. What are transgenes ?
5. Define vectors and give any two examples.
6. Define restriction endonuclease.
7. What is southern hybridization technique and was given by ?
8. Define cosmids.

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B-3022

9. What are transposons ?

10. Define biopesticides.

**Part-B**

11. Write a note on Antibody production, distribution and types ?

12. What is the role of MHC molecules in antigen recognition and immune responses ?

13. Write about immuno deficiency diseases in brief.

14. Write about transgenic animals, knock-outs and its principles associated with bioethics.

15. Write a note on Embryonic stem cells.

**Part-C**

**Unit-I**

16. Write about components of immune system and lymphocyte production in detail.

Or

Write in detail about humoral and cell mediated immunity.

**Unit-II**

17. Explain in detail about scope, significance and principles of biotechnology.

Or

Describe the basic Idea of Genomics and its application to health and agriculture, including gene therapy.

**Unit-III**

18. What are assisted reproduction technologies associated with screening for genetic disorders ?

Or

What is fermentation technology ? Explain the production of antibiotics beverages, enzymes and methane from biomass.