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T – 5676

Reg. No. : .....

Name : .....

**Fourth Semester M.Sc. Degree Examination, July 2024**

**Biotechnology**

**BT 401 : IMMUNOLOGY**

**(2018 Admission Onwards)**

Time : 3 Hours

Max. Marks : 75

**SECTION – A**

I. Answer **any two** of the following.

1. Describe the principle and procedure for Radioimmunoassay.
2. What are stem cells? Discuss about the types of stem cells and its applications.
3. Differentiate between innate immunity and acquired immunity.

**(2 × 15 = 30 Marks)**

**SECTION – B**

II. Answer **any nine** of the following.

4. Briefly describe the structure of IgA.
5. Differentiate between hapten and epitope.
6. What are NK cells? Mention its significance.
7. Differentiate between autograft and allograft.

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8. What is HLA typing? Mention its significance.
9. How are macrophages activated in inflammation?
10. Briefly describe clonal selection theory.
11. What are proinflammatory cytokines? Give two examples with its functions.
12. Differentiate between tumour associated antigens and tumour specific antigens.
13. What are attenuated vaccines? Give two examples.
14. What is HAT selection? Mention its significance.
15. Differentiate between Direct ELISA and indirect ELISA.

**(9 × 5 = 45 Marks)**

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