

**Ph.D Course Work Examinations, July-2023**

**BIOTECHNOLOGY**

**Course-IV: Recent Advances in Biotechnology**

**Time: 3 hours**

**Marks: 70**

**Instructions:** *All sections are compulsory*

**SECTION-A**

I. Answer any **Five** of the following questions in about one and half page each.

(5x5=25)

1. Induced pluripotent Stem cells (iPS)
2. Surface plasmon resonance
3. Quantum dot
4. DNA finger printing
5. Peptide Synthesis
6. Humanized mice
7. FACS

**SECTION-B**

II. Answer any **Three** of the following questions in about three pages.

(3x10=30)

8. Describe about autoimmune disorders.
9. Write a note on niche biology and its signalling mechanisms in regulation of haematopoiesis.
10. Discuss the properties and characterization of nanomaterials.
11. Explain the methods involved in gene transfer.
12. Write an account on enzyme immobilization techniques.

**SECTION-C**

III. Answer any **One** of the following questions in about four pages.

(1x15=15)

13. Discuss briefly about the chromatographic methods for macromolecule separation.
14. Explain different fermentation processes and its applications.

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