

**MICROBIOLOGY - IV**

**Semester - II**

**Time : Three Hours]**

**[Maximum Marks : 52**

**Note : Attempt two questions each from Section A and B carrying 8 marks each, and the entire Section C consisting of 10 short answer type questions carrying 2 marks each.**

**Section - A**

1. Describe the Clonal and Borth culture characteristics.

2. What is Pure culture ? Describe the pure culture techniques with their merits and demerits.
3. Describe the growth curve of bacteria. Also explain the mathematical expression of bacterial growth.
4. What is Minimal medium ? Describe the requirement of nutrients for microbes.

**Section - B**

5. Describe the process of transformation in bacteria.
6. Discuss Spontaneous and Non-spontaneous mutations in microbes.
7. What is Nitrogen fixation ? Describe the nitrogen fixation mechanism with structure and function of Nitrogenase.
8. Describe the microbiology and epidemiology of Aflatoxins and Algal toxins.

**Section - C**

9. Explain briefly :

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|--|-----------------------------|
| (a) Freeze drying  | (b) Enrichment medium.      |
| (c) Nutritional categories of bacteria.                          | (d) Colony characteristics. |
| (e) Synchronous growth.  | (f) Mutagenesis.            |
| (g) Nitrogen fixing microorganism (Symbiotic and Non-Symbiotic). |                             |
| (h) Gnotobiotic life.  |                             |
| (i) Specialized transduction.                                    | (j) Chemical mutagenesis.   |