

Semester - V

Paper : Mi-501 – Molecular genetics of Prokaryotes  
Time: 2:30 Hours

Paper Code: 21488  
Total Marks: 70

**Instructions:** (a) Figure to the right indicates total marks of respective question.  
(b) Draw neat, clean and labeled diagram wherever necessary.

- 1.(a) Explain: DNA is a genetic material. 07  
1.(b) Discuss: Structure of a gene. 07

OR

- 1.(a) Explain: Messelson & Stahl experiment. 07  
1.(b) Explain: Okazaki fragments. 07

- 2.(a) Explain: Termination & fate of ribosomes in translation. 07  
2.(b) Explain: Transcription in Prokaryotes. 07

OR

- 2.(a) Explain: Elongation in translation. 07  
2.(b) Discuss: Characteristics of genetic code. 07

- 3.(a) What are mutagens? Explain 5 – Bromouracil as mutagen. 07  
3.(b) Explain: Mis-match repair mechanism of DNA. 07

OR

- 3.(a) Discuss: Types of bacterial mutants. 07  
3.(b) Explain: Photoreactivation. 07

- 4.(a) Discuss: Types of plasmids. 07  
4.(b) Explain: Lac operon. 07

OR

- 4.(a) Define plasmids. Write on its properties & maintainence. 07  
4.(b) Write briefly on: Insertion sequences. 07

- 5.(a) Explain: Transfection. 07  
5.(b) Define transduction. Explain generalized transduction in detail. 07

OR

- 5.(a) Explain:  $F^+ \times F^-$  and  $Hfr \times F^-$ . 07  
5.(b) Define transformation. Explain DNA uptake in Gm –ve bacteria. 07