

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary. Answer all questions

LONG ESSAY (Answer any FOUR)**4 X 25 = 100 Marks**

1.
 - a) Draw neat labeled diagram of a typical bacterial cell and explain the structure and chemical composition of plasma membrane, with relevance to substrate entry, energy yielding mechanism and antimicrobial drug design
 - b) With a neat labeled diagram, describe the structure of bacteriophage and outline its cultivation and replication
2.
 - a) Compare fungi with bacteria and discuss the morphological features of molds
 - b) Describe the physical and chemical environment for bacterial growth and differentiate batch culture from continuous culture
3.
 - a) Schematically represent the formation of ATP and discuss various mechanisms of phosphorylation to generate ATP
 - b) Define Genetic Recombination and vertical gene transfer. Discuss the methods of gene transfer among bacteria
4.
 - a) what are the criteria to design a medium for industrial fermentation and explain the factors influencing the choice of carbon source
 - b) Discuss the production of Lactic acid by fermentation process and mention its uses
5.
 - a) Discuss the production and microbiological assay to Vit B₁₂
 - b) What are the advantages of microbial transformations over other methods and explain microbial transformations of steroids
6. Write short notes on:
 - a) Selective isolation techniques
 - b) Synchronous growth and normal growth
 - c) Secondary metabolites
 - d) Actinophages and their role in fermentations
 - e) Pharmaceutical effluents and treatment

* * * * *