

Duration: 3 Hours

Total Marks: 80

N.B:

- 1) Attempt **any four** questions
- 2) Each question carries **twenty** marks

Q.1 (a) Explain solid state fermentation and submerged fermentation. (10)

(b) Explain different components of culture media for microbial growth. (10)

Q.2 (a). Write short notes on fixed volume fed batch culture. (10)

(b). Write a note on antibiotic production in industry explain any one type briefly? (10)

Q.3 (a). What is del factor? Give significance of del factor during designing of batch sterilization process. (10)

(b). Explain microbial kinetics in batch culture. (10)

Q.4 (a). What is the basic function of fermenter? Explain in detail design of stirred tank fermenter. (10)

(b). Discuss crab tree effect along with its applications. (10)

Q.5 (a). Write a note on strain improvement of industrial microorganism with special emphasis on rDNA technology. (10)

(b). Explain carbon catabolite repression with an example. (10)