

AMB26 INDUSTRIAL BIOLOGICAL

1. Introduction, Objectives and Scope; Characteristic and comparison of bioprocessing with chemical processing.
2. Substrates for bioconversion processes and design of media
3. Isolation, preservation and improvement of industrial microorganisms, Cell culture techniques and aseptic transfers
4. Metabolic basis for product formation. Production of secondary metabolites-penicillin, tetracycline etc
5. Process technology for the production of cell biomass and some primary metabolites, e.g. ethanol, acetone-butanol, citric acid, dextran and amino acids.
6. Microbial production of industrial enzymes-glucose isomerase, cellulase & lipases.
7. Applications of bioconversion, transformation of steroids and sterols. Transformation of non-steroidal compounds, antibiotics and pesticides.
8. Bioenergy- fuel from biomass, production and economics of biofuels.
9. Metal recovery and microbial desulfurization of coal.

Reference Books:

1. Comprehensive Biotechnology Vol. 1- 4: M.Y. Young (Eds.), Pergamon Press.
2. Biotechnology: A Text Book of Industrial Microbiology: T.D. Brock, Smaeur Associates, 1990.
3. Industrial Microbiology: L.E. Casida, Willey Eastern Ltd., 1989.
4. Industrial Microbiology: Prescott & Dunn, CBS Publishers, 1987.
5. Bioprocess Technology- fundamentals and applications, S O Enfors & L Hagstrom (1992), RIT, Stockholm.