

II B.Tech. II Semester Regular Examinations, April/May -2005
BASIC INDUSTRIAL BIOTECHNOLOGY
(Bio-Technology)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Briefly write a historical overview of industrial fermentation process.
2. Describe the necessity of inoculum development in fermentation process?
3. Explain the production process of acetic acid by fermentation with the help of a diagram?
4. (a) Define aromatics.
(b) Describe the properties of aromatic compounds.
(c) Give the outline details biotechnological production of aromatic compounds
5. Write the importance of enzymes in economizing the industrial development?
6. Enumerate the importance of primary metabolite production in continuous culturing conditions?
7. Give detailed account of polyhydroxybutarate production by microbial system starting from glucose as carbon source?
8. Write the importance of biological system in steroid transformations with respect to chemical transformations?

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1. Describe the connective links for production of following:
 - (a) Glycolysis – acetic acid production
 - (b) TCA cycle – amino acid production
 - (c) Pyruvic acid – lactic acid production
2. Briefly describe the overproduction methodologies used in fermentation industry?
3. Describe the recovery process of gluconic acid from fermentation broth with the help of flow sheet?
4. Enumerate the role of precursors and inducers in secondary metabolite production?
5. Write short notes with examples on:
 - (a) Constitutive enzymes.
 - (b) Inducible enzymes.
 - (c) Extracellular and enocellular enzymes.
6. Indicate the importance of feed back inhibition in bioproduct production with examples?
7. Give detailed account of polyhydroxybutarate production by microbial system starting from glucose as carbon source?
8. Give the importance of recombinant DNA technology in viral vaccine development?

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1. Give a detailed classification of the biotech products based on the utility in various fields of human activity.
2. Give an account on products and biproducts that could be as substrates in biotech industries?
3. Describe the role of anaerobic fermentation process in the production of organic acids?
4. Enumerate the function of penicillin as antibiotic compounds?
5. Discuss the importance of recombinant proteins in human health care sector?
6. (a) Describe somatic hybridization with examples?
(b) Bring out the uses of protoplast fusion and somatic hybrids?
7. List out and describe some useful microbes that can be used as biopesticides?
8. What is the importance of interferon in human health care and illustrate their production processes?

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1. Write the importance of following in bioprocess development:
 - (a) Microbiological inputs.
 - (b) Bioreactor operation modes.
 - (c) Process parameters.
2. What are the important criteria to select the agricultural waste materials as raw materials for fermentation?
3. Describe the role of anaerobic fermentation process in the production of organic acids?
4. Write the importance of production medium in antibiotic production by microorganisms?
5. Describe enzyme production by semisolid culture method and mention its advantages and disadvantages?
6. Write short notes:
 - (a) Various steps involved in auxotroph selection.
 - (b) Importance of metabolic flow redirection in product production.
7. Give detailed account of polyhydroxybutarate production by microbial system starting from glucose as carbon source?
8. Write short notes on:
 - (a) Difference between vaccine and antibody.
 - (b) Immune response and vaccines.
 - (c) Disease control by vaccination.
