

**III B.Tech II Semester Supplementary Examinations,
November/December 2005
BIOPROCESS ENGINEERING-II
(Bio-Technology)**

Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. Give a detail account on the Environmental conditions affecting the growth kinetics in a Batch culture ? [16]
2. Write short notes on [16]
 - (a) advantages of Batch sterilization
 - (b) advantages of Continuous sterilization
 - (c) Del factor.
3. What is Cyclic fed batch culture ? What are the applications of fed-batch culture and examples of the use of fed batch culture ? [16]
4. Write in detail about the methods employed in measuring the following process variables. [16]
 - (a) Temperature
 - (b) Pressure
5. Discuss in detail of analysis procedures for determination of the protein and RNA content of yeast cells. [16]
6. Explain in detail about the various stages in gene expression. [16]
7. Write Short Notes On [16]
 - (a) Monoclonal antibodies.
 - (b) Immunobiological Regulators.
 - (c) Virus Vaccines.
 - (d) Hormones.
8. Discuss in detail about the factors which interact to determine pellet formation and pellet structure during cultivation of mycelial organism. [16]

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1. How can you classify the bioreactors based on the operational mode and explain about them ? [16]
2. Name the factors which account for the contacting or flow patterns in Non Ideal reactors ? Explain about different models of Non Ideal reactors ? [16]
3. List out the cardinal rules to be followed in design of a fermentor and its construction materials for successful operation ? [16]
4. Write in detail about the devices employed in exit-gas measurement ? [16]
5. (a) Discuss in detail about ON-Line Sensor.
(b) Discuss in detail about OFF-Line Analytical Methods [16]
6. Discuss in detail about Induction and Repression. [16]
7. Write Short Notes On [16]
 - (a) Monoclonal antibodies.
 - (b) Immunobiological Regulators.
 - (c) Virus Vaccines.
 - (d) Hormones.
8. Discuss in detail about a Morphologically structured kinetic model for Cephalosporin C production. [16]

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1. Write short notes on the following [16]
 - (a) Macro nutrients
 - (b) Micro nutrients
 - (c) Growth media
2. Explain the design of Batch sterilization process and its advantages ? [16]
3. What is Cyclic fed batch culture ? What are the applications of fed-batch culture and examples of the use of fed batch culture ? [16]
4. Write in detail about the devices employed in exit-gas measurement ? [16]
5. Discuss in detail about gas analysis system based on a microcomputer with schematic diagram. [16]
6. Discuss in detail the major steps involved in cloning a foreign DNA segment. [16]
7. Discuss in detail the scale-up of animal cell cultivation using BHK. [16]
8. Discuss in detail about growth cycle phases for batch cultivation. [16]

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1. List out the different accessories of a bioreactor and their uses ? [16]
2. Explain in detail about two-parameter model for Non ideal reactors? [16]
3. Write about the different configurations of Air-lift fermentor their design and operation ? [16]
4. Outline the methods employed for measuring Chemical process parameters and explain about them ? [16]
5. (a) Discuss in detail about ON-Line Sensor.
(b) Discuss in detail about OFF-Line Analytical Methods [16]
6. Explain in detail about the various stages in gene expression. [16]
7. Discuss in detail about the general approach to site-directed mutagenesis. [16]
8. Discuss in detail about growth cycle phases for batch cultivation. [16]
