

CODE NO: R05320804

2008 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

**III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS
BIO CHEMICAL ENGINEERING
(CHEMICAL ENGINEERING)**

AUG/SEP 2008

**TIME:3HOUR
MARK:80**

ANSWER ANY FIVE QUESTIONS ALL QUESTIONS CARRY EQUAL MARKS .

MARK [16*5=80]

1. Describe the structure and functions of various membrane bound and non-membrane bound cell organelles?
2. (a) What are the differences and similarities between enzymes and synthetic catalysts? Explain
(b) Give the classification of enzymes and the major classes of reactions that they catalyze.
3. (a) What is the importance of membrane transport in cells?
(b) Define membrane permeability and give its units.
(c) Compare the salient features of passive diffusion, facilitated diffusion and active transport.
4. Describe the features, configuration and operation of a CSTR and explain its advantages and limitations?
5. Conversion of starch to fructose is a very important commercial process. Describe the production of high fructose corn syrup with a neat flow diagram.
6. (a) Wall growth functions as a second, nonsterile feed that prevents washout. Explain this phenomenon.
(b) Show that the biomass production rate with recycle is greater than the nonrecycle biomass production by a factor of $[(1-a(b-1))^{-1}]$.
7. (a) Discuss about continuous sterilization of media with neat schematic diagrams.
(b) Mention the advantages and drawbacks of continuous sterilization.
8. (a) Distinguish between mechanical and non mechanical methods of cell disruption
(b) Define and explain electrophoresis and chromatography.