CODE NO: R05320804

2008 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

III B.TECH II SEMESTER SUPPLIMENTARY 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. (a) Name the five nitrogenous bases found in DNA and RNA nucleotide components and mention whether they are derived from purine and pyrimidine.

(b) Write about the important derivatives of adenosine. Draw their chemical structure.

(c) Define a coenzyme and name three important coenzymes derived from nucleotides.

2. (a) What are the differences and similarties between enzymes and synthetic catalysts? Explain

(b) Give the classification of enzymes and the major classes of reactions that they catalyze.

3. (a) What does immobilization of enzymes mean? Give the various reasons for immobilization.

(b) Discuss in detail the physical methods of immobilization.

4. Describe the transient growth kinetics with a neat sketch, explain the phases of growth?

5. Give a detailed account of carbohydrates with suitable examples.

6. (a) Discuss the principle, working and operation of a batch bioreactor with a neat sketch. Explain the collection of kinetic information and its interpretation in the same.

(b) Write a note on enzyme catalyzed reactions in CSTRs.

7. (a) For a batch fermentation process, describe the development of an incolulum from a stock culture.

(b) Write a detail about the special design features that are required to maintain aseptic conditions in a typical aerobic fermentation process.

8. Discuss in detail about precipitation method used for recovery of proteins and enzymes.