B. Tech.
(SEM. VI) EXAMINATION, 2007
INDUSTRIAL FERMENTATION-II

Time : 3 Hours] [Total Marks : 100

Note : Attempt all questions. All questions carry equal marks.

1. Attempt any four parts of the followings:-
   (a) What are auxotrophic mutants? How are they useful in amino acid fermentation?
   (b) Briefly discuss about the dual fermentation process for the production of L-lysine.
   (c) Write down various commercial uses of L-glutamic acid and its derivatives.
   (d) Briefly discuss the recovery and purification of riboflavin from fermented broth.
   (e) Discuss about the carbon and nitrogen sources for microbial production of L-glutamic acid and also mention the role of biotin.
   (f) Give the various sources of vitamin B_{12} and its usefulness.

2. Attempt any four parts of the following :-
   (a) Give the definition of antibiotics. Also mention the various mode of actions of antibiotics.

V–9102] 1 [Contd...

pm-vijay
(b) Discuss various types of penicillin with their precursors.
(c) Give the process parameters and method of production of penicillin–G by submerged culture fermentation.
(d) What are the various phases for production of streptomycin by fermentation?
(e) Give the various types of tetracycline and at least one example of each.
(f) Give some examples of new antibiotics and their sensitive organisms.

3. Attempt any two parts of the following:
(a) Discuss the various sources of enzymes and give justification about the suitable source for commercial enzyme production. How glucoamylase is produced through fermentation?
(b) Give the detail of recovery and purification of L-Amylase from fermentation broth. Also mention the industrial applications of amylases.
(c) Describe the process conditions and method of production of lipases by fermentation process. Also give various industrial applications of lipases.

4. Attempt any two parts of the following:
(a) Explain that microbial transformations are more useful than chemical transformations. Give the details of biotransformation of D-sorbitol to L-sorbose.
(b) Give the basic structure of steroids and explain the mechanism and general method of microbial transformation of steroids.

(c) Give the detail of fermentative production of vaccines, use suitable examples.

5. Attempt any **two** parts of the following:

(a) Describe the method of production of xanthan gum by fermentation. Give the commercial uses of xanthan gum.

(b) Discuss various commercial bio-insecticides and briefly describe about the production of any one bio-insecticide.

(c) Define ‘biofertilizer’ with suitable examples. Describe the production technology of Rhizobial cultures.