

Registration No. : 

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Total number of printed pages – 2

B. Tech  
PCBT4307

**Sixth Semester Back Examination – 2015**  
**INDUSTRIAL MICROBIOLOGY AND ENZYME**  
**TECHNOLOGY**

**BRANCH : BIOTECH**

**QUESTION CODE : M 294**

**Full Marks – 70**

**Time : 3 Hours**

*Answer Question No. 1 which is compulsory and any **five** from the rest.  
The figures in the right-hand margin indicate marks.*



1. Answer the following questions : 2 × 10
- (a) solid state fermentation.
  - (b) What is  $\alpha$ -amylase ?
  - (c) Auxotrophic mutant.
  - (d) Lyophilization.
  - (e) Fed batch fermentation.
  - (f) What are enzymes used in medical therapy ?
  - (g) What are different types of penicillin ?
  - (h) Briefly mention about matrix used in immobilisation.
  - (i) What are microbial lipids ?
  - (j) Exponential phase of growth.
2. (a) Briefly describe industrial methods for antibiotic production. 5
- (b) Distinguish between submerged and solid state fermentation. 5

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3. (a) Michelis and Menten kinetics for enzyme reaction. 5  
(b) Describe media selection and development for industrial product formulation. 5
4. (a) Discuss important processes in industrial production of ethanol. 5  
(b) Distinguish between continuous and fed batch fermentation. 5
5. Explain the immobilization techniques. Discuss advantages and disadvantages of immobilized enzymes over native enzymes. 5+5
6. Discuss the process of isolation of yeast strains for use in fermentation technology. Discuss different approaches involved in yeast strain improvement for industrial production. 10
7. Write short note on any **two** of the following : 5×2  
(a) Enzyme stabilization  
(b) Application of enzyme in industry  
(c) Natural medium and synthetic medium.
8. Write short note on any **two** of the following : 5×2  
(a) Sacchrification  
(b) Genetically engineered strain  
(c) Lactic acid production.

