

Registration No. :

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Total number of printed pages – 2

B. Tech  
PCBT 4307 (New)

**Sixth Semester (Back) Examination – 2013**  
**INDUSTRIAL MICROBIOLOGY AND ENZYME TECHNOLOGY**

**BRANCH : BIOTECH**

**QUESTION CODE : B268**

**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) Surface culture method.
  - (b) Secondary metabolites
  - (c) Auxotrophic mutant
  - (d) Enzyme encapsulation
  - (e) Batch fermentation
  - (f) Differentiate between Native PAGE and SDS-PAGE.
  - (g)  $\beta$ -lactam ring
  - (h) Enzyme immobilization
  - (i) Define catabolic repression.
  - (j) Broad spectrum antibiotics
2. (a) Briefly describe industrial methods for citric acid production. 5×2
- (b) What is solid state fermentation ? Discuss its significance in large scale operation.



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3. (a) Derive Michaelis and Menten kinetics for enzyme reaction. 5×2  
(b) Differentiate between broad spectrum and Narrow spectrum antibiotics.
4. (a) Describe different methods of enzyme immobilization. 5×2  
(b) What are the applications of enzymes in medicinal therapy ?
5. (a) Differentiate between entrapment and cross linking. 5×2  
(b) What are the advantages and disadvantages of immobilized enzymes ?
6. Describe the process of antibiotic production studied by you. Which type of bioreactor is used for antibiotic production. 10
7. Write down short notes on any **two** of the following : 5×2  
(a) Enzyme stabilization  
(b) Protein engineering and its significance  
(c) Site-directed mutagenesis in protein engineering.
8. Write down short notes on any **two** of the following. 5×2  
(a) Strain improvement  
(b) Overproduction of decontrolled mutant  
(c) Submerged culture.

