Total number of printed pages – 2

B. Tech

PCBT 4307

Sixth Semester (Special/Back) Examination – 2013

INDUSTRIAL MICROBIOLOGY AND ENZYME TECHNOLOGY

BRANCH : BIOTECH

QUESTION CODE : E 325

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) What is saccharification ?

   (b) Name the enzyme that converts starch to disaccharide.

   (c) What is a-amylase ?

   (d) Distinguish between upstream and downstream processing.

   (e) Write down the mathematical expression of Monod's equation in growth kinetics ?

   (f) Briefly mention the process of sterilisation by autoclave.

   (g) Distinguish between submerged and solid state fermentation.

   (h) What is exponential phase growth ? Discuss its importance.

   (i) What is immobilisation and different matrix used in immobilisation ?

   (j) Discuss importance of mutation in strain improvement.

2. Discuss in detail the steps involved in alcohol fermentation. What are the precautions to be taken during fermentation process ? 6 + 4

3. What is enzyme stabilisation? Give different strategies adopted for enzyme stabilisation. 3 + 7

4. Write short notes on following (any **two**) : 5 × 2

    (a) Batch culture

    (b) Submerged fermentation

    (c) Microbial growth media.

5. Discuss the process of isolation, selection and characterisation of yeast strains for use in fermentation technology. Discuss briefly the approaches involved in strain improvement 7 + 3

6. What are different types of penicillin ? Discuss industrial production of Penicillin. 10

7. Differentiate between (any **two**) : 5 × 2

    (a) Natural medium and synthetic medium

    (b) Surface fermentation and Submerged fermentation

    (c) Immobilisation.

8. Describe in detail about the application of enzymes in medical therapy. 10