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Roll No.

B.Sc. (Bio. Tech.)-III Year

3479(N)

B.Sc. (Bio-Tech.) Examination, May 2017

Bioprocess Engineering and Technology

B-307 (Old) & B-311 (New)

Time : Three Hours] [Maximum Marks : 100

Note : Attempt any five questions. All questions carry equal marks.

- 1/ Describe various uses of enzymes in food and other industries. 20
2. How can you prepare a pure culture of a microorganism for-
 - (a) Short-term storage
 - (b) Long-term storage
- 3/ What do you mean by sterilization? Briefly describe the different techniques of sterilization. 20

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4. List the various types of metabolites produced through fermentation and describe the production of any one of them in detail. 20
- 5/ (a) Explain a fed-batch bioprocess. 20
 $2 \times 10 = 20$
(b) Write the substrates and applications of solid state fermentation.
6. Name any four physical and / or chemical properties of enzymes which might be useful to change by site- directed mutagenesis. Support your answer by taking an example of an engineered protein/enzyme. 20
7. (a) Continuous culture is beneficial to batch culture in terms of productivity. How? 20
 $2 \times 10 = 20$
(b) Different methods of air sterilization.
- 8/ Describe briefly the molecular mechanism of enzyme action.

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9. What is bioseparation? Describe the techniques have been used for cell fractionation.

10. Write short notes on any **four** of the following. 5×4=20

(a) Affinity chromatography

(b) Reverse osmosis

(c) Contribution of Louis Pasteur

(d) Feed back inhibition

(e) Genetically engineered microbes