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(20620) Roll No. ....  
B.Sc. (Biotech.)-III Year

## 3479(N) (CV)

### B.Sc. (Biotech.) Examination

June-2020

#### Bioprocess Engineering & Technology

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

Time : Two Hours ] [Maximum Marks : 100

#### Section - A

**Note :** Attempt any **Four** questions. **All** questions carry equal marks.

1. What are bioreactors and explain their role in industry?
2. How the enzymes activities are regulated? Elaborate all factors which affect enzyme activity?
3. Demonstrate and explain a batch

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fermentation process with the help of a neat diagram. Discuss various raw material used for production of ethanol. Discriminate between rectified spirit and power alcohol.

4. Explain the chromatographic techniques used in purification process.

5. What is down streaming process? Describe its steps involved in the modelling and simulation of bioprocess.

6. Write notes on the following:

- (i) What is the purpose of sterilization of medium and air for fermentation process?
- (ii) Describe microbial growth curve with importance of each phase of growth.

7. Sketch the significance of a fermentation

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process. Describe the various steps involved in carrying out large scale fermentation.

(8) Write short notes on the following:

- (I) Crystallization
- (II) Centrifugation
- (iii) Reverse Osmosis
- (iv) Flocculation

9. Write the contribution of the following in the area of microbes:

- (i) Louis Pasteur
- (II) Robert Koch

(10) Write in detail the applications of enzymes in food processing.