(20518) Roll No. .....

B. Sc. (Biotech.)-III Year

NS-3478

B. Sc. (Biotechnology) Examination, May 2018

Industrial Biotechnology

(B-306)

(New)

Time : Three Hours] *[Maximum Marks : 75*

Note : Answer any *Five* questions. All questions carry equal marks.

1. Give an account of commercial production of Acetic acid and Lactic acid and their application. 15

2. Write notes on the following : 7½×2=15
   (a) Biosensors
   (b) Food adulteration with reference to dairy products.

3. Describe the following : 7½×2=15
   (a) Selection of industrial microorganism for fermentation
   (b) Metabolic Engineering.

4. What is Fermentation ? Explain the various stages of microbial growth curve with the help of suitable diagrams. 15

5. Describe in detail the commercial production of Insulin and Vitamin B_{12} and their application. 15

6. Explain the following : 7½×2=15
   (a) Product recovery
   (b) Lactose utilization.

7. What do you mean by enzyme immobilization ? Describe the various methods of enzyme and cell immobilization and their application in industries. 15

8. Describe the basic design of a bioreactor. Explain the heat transfer and scale up bioreactors and their advantages. 15

9. Explain the following : 7½×2=15
   (a) Airlift Bioreactor
   (b) Photobioreactor.

10. Explain the commercial production of Lipases and Proteases and their application in industry. 15