

**PARUL UNIVERSITY**  
**FACULTY OF APPLIED SCIENCE**  
**B.Sc., Winter 2017-18 Examination**

**Semester: 5**  
**Subject Code: 11102301**  
**Subject Name: Industrial Biotechnology**

**Date: 18/12/2017**  
**Time: 2.00 pm to 4.30 pm**  
**Total Marks: 60**

**Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1. A) Essay type/ Brief note (4x2) (Each of 04 marks) (08)**  
(a) Write a note on crowded plate technique for screening of industrial important organisms.  
(b) Write a brief note on preservation of culture.
- Q.1. B) Answer the following questions (Any two) (04)**  
(a) Short note/ Brief note (2x2)/ Schematically label the figures (2x2) (Each of 02 marks) (04)  
1. Define primary screening  
2. Brief note on biogas  
(b) Write a Frings method for acetic acid production. (04)  
(c) Write a short note on fermentation of beer. (04)
- Q.2. A) Answer the following questions. (04)**  
(a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks) (04)  
1. Give an example of antifoam agents.  
2. What is Secondary screening?  
(b) Write a note on structure of ideal fermentor. (04)
- Q.2. B) Answer the following questions (Any two) (03)**  
(a) Short note/ Multiple choice questions. (Each of 01 marks) (03)  
1. A \_\_\_\_\_ may be defined as a device for introducing air into the liquid in a fermenter.  
2. lyophilization is also known as \_\_\_\_\_  
3. What is the role of head space in fermentor?  
(b) Write an applications of Vit B12. (03)  
(c) Write an applications of proteases. (03)
- Q.3. A) Essay type/ Brief note (4x2) (Each of 04 marks) (08)**  
(a) Write a brief note on Airlift fermentor.  
(b) Write a note on bubble column fermentor.
- Q.3. B) Answer the following questions (Any two) (04)**  
(a) Short note/ Brief note (2x2)/ Schematically label the figures (2x2) (Each of 02 marks) (04)  
1. Give an example of impellers.  
2. How to control pH during fermentation?  
(b) Write a short note on wine production. (04)  
(c) Write a short note on spargers and its types. (04)
- Q.4. A) Answer the following questions. (04)**  
(a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks) (04)  
1. What is the role of rennet in cheese production?  
2. Give an account of baffles.  
(b) Write a short note on classical recovery of citric acid. (04)
- Q.4. B) Answer the following questions (Any two) (03)**  
(a) Short note/ Multiple choice questions. (Each of 01 marks) (03)  
1. Most industrial micro-organisms are \_\_\_\_\_.  
2. For cheese production which type of bacteria are important?  
3. Casein exists in milk as a \_\_\_\_\_.  
(b) Write a note on enzymatic assay. (03)  
(c) Write note on titrimetric method. (03)