

**Bachelor of Science (B.Sc.) Semester-III (C.B.S.) Examination**  
**MICROBIOLOGY**  
**Paper — II**  
**(Industrial Microbiology)**

Time : Three Hours]

[Maximum Marks : 50

**N.B. :—** (1) All questions are compulsory and carry equal marks.  
(2) Draw well labelled diagrams and give examples wherever necessary.

1. Describe various methods of primary screening. 10

**OR**

Define strain improvement. Describe various methods of strain development. 10  
2. Draw well labelled diagram of a typical fermentor and describe different parts of fermentor. 10

**OR**

Explain different fermentation processes. Describe the various factors affecting fermentor design. 10  
3. (a) Describe inoculum development. 5  
(b) Describe scale-up of fermentation process. 5

**OR**

(c) Enlist various methods of harvesting. Describe any two methods. 5  
(d) Describe briefly various sources of nitrogen used for media preparation. 5  
4. (a) What are advantages and disadvantages of scp ? 2½  
(b) Give the flow sheet diagram of ethanol production. 2½  
(c) Describe the production of vit. B<sub>12</sub>. 2½  
(d) Describe the different types of wines. 2½

**OR**

(e) Give the flow sheet diagram of citric acid production.	2½
(f) Discuss the significance of hop flowers in beer production.	2½
(g) Write a note on mashing.	2½
(h) Explain recovery and purification of penicillin.	2½
<b>5. Solve any ten :</b>	
(i) What is secondary screening ?	1
(ii) Name the method used for sterilization of heat labile components of media.	1
(iii) Give two examples of industrially important fungi and their products.	1
(iv) Give two examples of antifoam agents.	1
(v) Write any two buffers used in industrial fermentations.	1
(vi) What are chelating agents ? Give one example.	1
(vii) What is the significance of pilot plant fermentor in scale-up studies ?	1
(viii) What is the role of stimulators used in media preparation ? Give one example.	1
(ix) What are black strap molasses ?	1
(x) What is azeotropic mixture ?	1
(xi) Name any two microorganisms used in baker's yeast production.	1
(xii) What are semi synthetic penicillins ?	1