

Seat No. : _____

AE-115

August-2021

B.Sc., Sem.-VI

310 : Microbiology

(Bio Process Tech.)

Time : 2 Hours]

[Max. Marks : 50

- Instructions :**
- (1) All questions in **Section – I** carry equal marks.
 - (2) Attempt any **three** questions in **Section – I**.
 - (3) Question No. – **9** in **Section – II** is **COMPULSORY**.

Section – I

1. (A) Explain with examples; solid-substrate fermentation. 7
(B) Explain in brief; containment of genetically engineered organisms. 7
2. (A) Write a note on: Continuous fermentation. 7
(B) Write a note on: Mass transfer of oxygen. 7
3. (A) Draw and describe Foam separation method. 7
(B) Describe the use of rotary vacuum filter in separation of microbial cells. 7
4. (A) Explain in brief co-current and counter-current extraction system. 7
(B) Describe activated sludge process for industrial effluent treatment. 7
5. (A) Describe turbidity analysis and cell-yield determinations as physical assays of fermentation product. 7
(B) Write a note on end point determination assays for fermentation product. 7
6. (A) Describe principle, procedure and applications of LAL test. 7
(B) Describe research cost and patent position as components of fermentation economics. 7
7. (A) Describe in brief harvest and recovery of penicillin from fermentation broth. 7
(B) Describe in brief recovery of ethanol from fermentation broth. 7
8. (A) Give a brief outline of Citric acid fermentation. Enlist applications of amylase and citric acid. 7
(B) Describe L-lysine fermentation. 7

Section – II

9. Give short and specific answer in **1 to 2 lines only** : (any **8** out of **16**) **8**
- (A) Give name of two gaseous components of scale-up window.
 - (B) What is the use of tachometer in stirred tank bioreactor ?
 - (C) What is represented by A_w in solid substrate fermentation ?
 - (D) Which phase of microbial growth is extended in continuous culture ?
 - (E) Which solvent is used to precipitate out dextrans from fermentation broth ?
 - (F) Which type of centrifuge is also called as centrifugal filter ?
 - (G) Name the organic acid that can be extracted using liquid membrane.
 - (H) Give full name of BAFS.
 - (I) Give an example of vital fluorescent stain.
 - (J) What is seeded agar ?
 - (K) What is the significance of positive controls of sterility testing ?
 - (L) Which component of gram-negative bacterial cell generally act as a pyrogen ?
 - (M) Draw the chemical structure of 6-Aminopenicillanic acid.
 - (N) Give an example of organic acid that can be used as plasticizer.
 - (O) In addition to *Saccharomyces cerevisiae* which other types of yeast can be used for alcohol production ?
 - (P) What is feed back repression ?
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