

Seat No. : _____

MK-107

May-2022

B.Sc., Sem.-V

CC-304 : Microbiology

(Fermentation Technology)

Time : 2 Hours]

[Max. Marks : 50

- Instructions :**
- (1) Attempt any **Three** questions in **Section-I**.
 - (2) Write correct question number on top of each answer.
 - (3) Draw figure wherever necessary.
 - (4) All questions in **Section-I** carry equal marks.
 - (5) **Section-II** is **COMPULSORY**.

SECTION – I

1. (A) Describe microbial metabolites as commercially important fermentation products. 7
(B) Describe stage 2 and stage 3 of the chronological development of fermentation industry. 7
2. (A) Describe the development of fermentation industry producing recombinant proteins. 7
(B) Draw and describe component parts of a fermentation process. 7
3. (A) Explain primary screening of organic acid and amino acid producing microorganisms. 7
(B) Enlist characteristics of an industrially ideal microorganism. 7
4. (A) Describe storage of industrially important microorganisms in a dehydrated form. 7
(B) Explain in brief : selection of non-foaming and morphologically favorable strains. 7
5. (A) Explain in brief : Molasses, Corn steep liquor & Sulfite waste liquor as ingredients of fermentation medium. 7
(B) Write a brief note on antifoam agent. 7

6. (A) Explain filter sterilization of fermentation media. 7
(B) Explain development of inocula for yeast processes. 7
7. (A) Describe in brief different types of agitators and spargers used for aeration and agitation. 7
(B) Draw and describe Air-lift fermenter. 7
8. (A) Describe devices used to monitor and control the temperature and dissolved oxygen in a fermenter. 7
(B) Draw and describe Cyclone fermenter. 7

SECTION – II

9. Answer the following in 1-2 lines (any 8). 8
- (1) Define the term fermentation in a strict biochemical sense.
 - (2) Who developed Acetone-Butanol fermentation for the first time ?
 - (3) Give scientific name of the microorganism used in Pruteen process
 - (4) Give one name of low value and high-volume fermentation product.
 - (5) Which three properties of a preserved stock culture are assessed for quality control ?
 - (6) Give full name of HRM systems.
 - (7) What is haploidization ?
 - (8) Who discovered para-sexual cycle in fungi ?
 - (9) What is cellular yield coefficient ?
 - (10) Name the fermentation product for which, Phenylethylamine is used as a precursor.
 - (11) What is the use of Roux bottle in fermentation process ?
 - (12) What is measured by Del factor of sterilization process ?
 - (13) Give name of metals present in AISI grade 316 steel.
 - (14) What is an aspect ratio of a fermenter ?
 - (15) Which type of bioreactor is most suitable for the growth of filamentous culture ?
 - (16) Give one use of packed bed reactor.