

MASTER OF SCIENCE (BIOTECHNOLOGY) (CBCS-2018 COURSE)
M.Sc.(Biotechnology) Sem - III : WINTER :- 2021
SUBJECT: MICROBIAL TECHNOLOGY

Day : Saturday
Date 29-01-2022

W-19758-2021

Time : 10:00 AM-01:00 PM
Max. Marks: 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Both the sections should be written in **SAME** answer book.

SECTION – I

- Q.1** Attempt any **FIVE** of the following: **(10)**
- a) What are primary and secondary metabolites?
 - b) What is inoculum development?
 - c) What is the role of sparger and impeller?
 - d) How industrially important microorganisms are preserved by lyophilization ?
 - e) What is downstream processing?
 - f) Enlist various strain improvement techniques?
- Q.2** Attempt any **TWO** of the following: **(10)**
- a) Explain growth kinetics of batch culture.
 - b) Explain design of typical fermenter with diagram.
 - c) What is $K_L a$ value? How it is determined?
- Q.3** Write short notes on any **TWO** of the following: **(10)**
- a) Filter sterilization
 - b) Fed batch culture
 - c) Air lift fermenter

SECTION - II

- Q.4** Attempt any **FIVE** of the following: **(10)**
- a) What are antifreeze protein?
 - b) What are siderophores?
 - c) What is PHA? Give its applications.
 - d) What are PGPB? Give example.
 - e) Enlist the microorganisms used in vitamin B₁₂ production.
 - f) What are lycopenes?
- Q.5** Attempt any **TWO** of the following: **(10)**
- a) Explain the production process of Lactic acid with recovery.
 - b) Explain in detail biotransformation of sterols.
 - c) What are indigo? How they are produced?
- Q.6** Write short notes on any **TWO** of the following: **(10)**
- a) Penicillin production
 - b) Amylase production
 - c) Microbial insecticides with example.

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