

BACHELOR OF SCIENCE (BIOTECHNOLOGY) (2010 COURSE)
T.Y. B.Sc. (Biotechnology) Sem-VI : WINTER :- 2021
SUBJECT: INDUSTRIAL BIOTECHNOLOGY

Day : Thursday
Date 3/2/2022

W-6289-2021

Time : 02:00 PM-05:00 PM
Max. Marks: 80

N.B.

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

SECTION –I

- Q.1** A) Answer **ANY ONE** of the following: (06)
- i) What is maintenance media? Discuss the role of chelators, precursors, growth factors and minerals in fermentation media.
 - ii) Discuss industrial fermentation of bacterial Amylase.
- B) Answer **ANY FIVE** of the following: (10)
- i) What are the criteria for selection of industrially important microorganisms?
 - ii) Mention various Carbon sources used in media formulation.
 - iii) What is submerged fermentation?
 - iv) What are primary and secondary metabolites?
 - v) Name various antifoam agents used in fermentation media. Give their significance.
 - vi) What is scenario of enzyme fermentation in India?
- Q.2** A) Write short notes on **ANY FOUR** of the following: (16)
- i) Strain improvement techniques
 - ii) Inoculum development of bacteria
 - iii) Nitrogen sources in media
 - iv) Primary screening
 - v) Preservation methods of industrially important microorganisms.

SECTION –II

- Q.3** A) Answer **ANY ONE** of the following: (06)
- i) Discuss the process of latex collection and extraction of Papain. Mention applications of papain.
 - ii) Explain the various parts of a typical fermenter. Draw a well labelled diagram of fermenter.
- B) Answer **ANY FIVE** of the following: (10)
- i) What are the applications of gluconic acid?
 - ii) What is ultra-filtration?
 - iii) What is the role of Rotameter in fermenter?
 - iv) What is downstream processing?
 - v) How is glucose monitored during fermentation?
 - vi) What are immobilized enzymes? Give their applications.
- Q.4** Answer **ANY FOUR** of the following: (16)
- i) Discuss the process of Solid Waste Management with reference to activated sludge.
 - ii) Explain industrial fermentation of Penicillin.
 - iii) Discuss industrial production of Ethanol.
 - iv) What are the different types of sensors used for process monitoring?
 - v) What is composting? Give its significance in effluent management.
- Q.5** A) Write short notes on **ANY FOUR** of the following: (16)
- i) Lactic acid fermentation
 - ii) Carotenoid production
 - iii) Basket centrifuge
 - iv) Biomass measurement during fermentation
 - V) Rotary vacuum filter.

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