

M.Sc Sem.-2 Examination

P - 407

Biotechnology

June 2022

Time : 2-00 Hours]

[Max. Marks : 50

- Instructions: (1) All questions in **Section I** carry equal marks
 (2) Attempt **any three** questions in Section I
 (3) **Section II** is compulsory

Section I

- Q 1** A Discuss various strategies used for the preservation of industrially important microorganisms along with their advantages and limitations. 7
 B Explain fermentation medium optimization using the Plackett-Burman design method. Write its advantages. 7
- Q 2** A Write in detail the significant design aspects of various air-lift fermenters. 7
 B Give a detailed account of monitoring and control of pH and temperature in fermenters. 7
- Q 3** A Give a detailed note on the fungal inoculum development program with a suitable example. 7
 B What is K_{La} ? Discuss factors affecting K_{La} . 7
- Q 4** A Discuss large-scale batch sterilization of fermentation media using moist heat. 7
 B Write a detailed note on physico-mechanical methods used for cell disruption in fermentation industries. 7
- Q 5** A Describe probiotics with their mode of action and health benefits. 7
 B Discuss various steps involved in the production of cheese with a flow diagram. Write significance of each step. 7
- Q 6** A Narrate the role of lactic acid bacteria in fermented foods with examples. 7
 B Write a detailed note on nutraceuticals and microbial value addition in them. 7
- Q 7** A Explain the phases of mushroom cultivation. Write importance of each step. 7
 B Describe any one process of single-cell protein production. 7
- Q 8** A Discuss various physical, chemical, and biological properties of carotenoids. 7
 B Write a detailed note on single cell oil production and their applications. 7

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Section II

Q 9 Write answer in 1-2 sentences

8

- A What is the importance of an antifoam agent in a fermentation process?
- B What is Rotameter?
- C What is non-Newtonian fluid?
- D What is the sedimentation coefficient?
- E What is baker's yeast?
- F Name four Indian fermented foods
- G Define - Spawn
- H Give full form of DMAPP

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