

2025

M.Sc. 1st Semester Examination

BIOTECHNOLOGY

Paper : BITE404A0

[Microbial Biotechnology]

Full Marks : 50

Time : Two Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers

in their own words as far as practicable.

Group - A

Answer any *four* questions :

2×4=8

1. What is bioleaching?
2. What are the three culture methods of bacteria on solidified nutrient media?
3. Name one antibiotic that can inhibit the cell membrane permeability and one that inhibit the nucleic acid synthesis of bacteria.
4. What is lyophilization?
5. What is synchronous growth?
6. What are obligate anaerobes? Give example.

P.T.O.

(2)

Group - B

Answer any *four* questions : $4 \times 4 = 16$

7. Draw a labelled diagram of the conventional bioreactor.
8. Define sterilization. Mention the different agents used for sterilization. 1+3
9. What are the different types of chromatography used in DSP?
10. What is an impeller? Mention the different types of impellers. Define baffle. 1+2+1
11. Define metagenomic library construction. Mention two important applications of Metagenomics in biological field. 2+2
12. Discuss the application of metagenomics in studying unculturable microorganisms.

Group - C

Answer any *two* questions : $8 \times 2 = 16$

13. Describe the bacterial growth curve, mentioning all the phases. Elucidate the mathematical expression of bacterial growth curve. 4+4
14. Mention the flowchart of the production methods of the Penicillin. 8
15. Describe the different mechanisms used for the drug resistance to the antibiotics. What is sulphonamide? 6+2

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16. Describe the process of industrial production of single cell protein (SCP) and discuss its application and disadvantages. 4+2+2

Internal Assessment : 10 marks
