

Seat No. : _____

MD-222

May-2025

M.Sc., Sem.-II

410 : Microbiology

(Advances in Microbial Technology)

Time : 2:30 Hours]

[Max. Marks : 70

1. Discuss the fermentative processes of acetone-butanol production in detail and write applications of acetone-butanol. 14

OR

1. (A) Explain the microbial production and applications of exopolysaccharide with a flow diagram. 7
(B) Describe the fermentative production of protease and write its applications. 7

2. Discuss microbial production of streptomycin and factors affecting its biosynthesis. 14

OR

2. (A) Describe the fermentative production of vitamin B₂ and write its application. 7
(B) Explain steps of monoclonal antibody production and give applications of MAbs. 7

3. Give classification of starter cultures and discuss significance of each in food industry. 14

OR

3. (A) Discuss the mode of action of probiotic microorganisms and briefly write the evaluation procedure of a probiotic culture. 7
(B) Enlist types of cheese and write the general process of cheese production. 7

4. Narrate the commercial production of mushrooms and write the importance of their nutritional value. 14

OR

4. (A) Give a detailed account of large-scale production of baker's yeast. 7
(B) Discuss the process for production of single cell oil. 7

5. Write 1-2 line answers to any **seven** of the following :

14

- (a) Give the names of microbes used for the production of PHA.
 - (b) Enlist carbon sources used for the fermentative production of citric acid.
 - (c) Enlist the types of biosurfactants.
 - (d) Differentiate between rate-zonal and isopycnic centrifugation.
 - (e) Explain the mechanism of methotrexate (MTX).
 - (f) Give two examples of vector-based vaccines.
 - (g) Define - Ultra pasteurisation.
 - (h) What are prebiotics, probiotics and synbiotics ?
 - (i) Name nutraceuticals that are used in chemotherapy.
 - (j) What is yeast cream ?
 - (k) Write two examples of lycopene-producing microorganisms.
 - (l) Enlist the factors affecting fermentative production of β carotene.
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