

Seat No. : _____

AE-129

April-2025

B.Sc., Sem.-VI

CC-309 : Biotechnology (Microbial Biotechnology)

Time : 2:30 Hours]

[Max. Marks : 70

1. What are the criteria for selection of industrial organisms and add a note on strain improvement. 14

OR

1. (A) Explain briefly source and content of raw materials used in fermentation. 7
(B) Describe inoculum development for bacteria. 7

2. Explain culture, medium, process and recovery for fermentative production of SCP. 14

OR

2. (A) Write about media, culture, process and recovery for fermentative production of edible mushrooms. 7
(B) Discuss microbial growth kinetics. 7

3. Describe fermentative production of citric acid and its commercial importance. 14

OR

3. (A) How can be overproduction of primary metabolite done by manipulation of limiting biotin ? 7
(B) Brief fermentative production of ascorbic acid. 7

4. Discuss fermentative production of any antibiotic and ergot alkaloids. 14

OR

4. (A) Explain polyketide biosynthesis. 7
(B) Write about secondary metabolism and control. 7

5. Answer any **seven** of the following :

14

- (1) What is primary and secondary screening ?
 - (2) What is pharmamedia ?
 - (3) How is sterilization of bioreactor done ?
 - (4) Write two applications of *Chaetoceros* algae.
 - (5) Give examples of legume inoculants.
 - (6) Write the media used for fermentative production of *Bacillus thuringiensis*.
 - (7) What is the name of Vitamin B12 ? Name deficiency caused by this vitamin.
 - (8) Which phases of bacteria produce primary and secondary metabolites ?
 - (9) What are auxotrophic mutants ?
 - (10) Write uses of xanthan gum.
 - (11) Write examples of fungal secondary metabolites and their economic importance.
 - (12) Name the organism used for production of polyesters and sterols.
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