

Seat No. : _____

SK-116

September-2020

B.Sc., Sem.-VI

**CC-309 : Biotechnology
Microbial Biotechnology**

Time : 2 Hours]

[Max. Marks : 50

- Instructions :**
- (1) Draw figures where necessary.
 - (2) Show question number against each answer.
 - (3) Figures in right are marks.
 - (4) Answer any **three** out of initial **eight** main questions, Question **9** is compulsory.

1. (A) Describe culture media ingredients and formulation used for industrial fermentation. 7
(B) Explain process for sterilization of Air for fermentation process. 7
2. (A) Explain selection and screening of industrially important organisms. 7
(B) Describe the methods used in strain improvement of industrial cultures. 7
3. (A) Describe medium, process and recovery for the production of SCP. 7
(B) Write note on cultivation of common edible mushrooms. 7
4. (A) Describe the fermentative production of *Bacillus thuringiensis*. 7
(B) Explain medium and fermentation process of yeasts biomass. 7

5. (A) Describe overproduction of amino acids by physiological manipulation limiting biotin concentration. 7
- (B) Describe the fermentative production of Vitamin B12. 7
6. (A) Explain overproduction of amino acids using auxotrophic mutants. 7
- (B) Explain two-stage process for the fermentative production of Alcohol. 7
7. (A) What is secondary metabolism ? Explain production and genetic control of secondary metabolism. 7
- (B) Explain uses of ergot alkaloids and its microbial production. 7
8. (A) Discuss in detail the fermentative production of Xanthan gum. 7
- (B) Describe the fermentative production of Cephalosporin. 7
9. Answer in short : (Any **eight**) 8
- (A) Name the complex media used for fungal cultivation.
- (B) What is the temperature of liquid Nitrogen ?
- (C) Write the name of any two antifoaming chemical agents.
- (D) Why sterilization of air is practiced in fermentation process ?
- (E) How inoculum is developed from bacterial stock cultures ?
- (F) What is the use of hydrocarbons and WSL in fermentation process ?
- (G) Which purification method is used for low molecular weight compounds like antibiotics ?
- (H) Which technique is used for recovery of yeast cells ?
- (I) Which method is used for the production of *Chaetoceros* algae ?

- (J) Give the scientific name of baker's yeast.
 - (K) Which raw material is used for the production of legume inoculants ?
 - (L) Which is the most common method for citric acid production ?
 - (M) Name the bacteria used in Acetone-butanol production.
 - (N) Define Auxotrophs
 - (O) Name two algal species used for food.
 - (P) Name two industrially produced primary metabolites.
 - (Q) Why regulatory mutants are over producer of amino acids ?
 - (R) Give medicinal use of Ergot alkaloid.
 - (S) What is Idiophase ?
 - (T) Give two uses of Rifamycin.
 - (U) Define sterols.
 - (V) Which antibiotic belong to group polyketide ?
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