

Seat No. : \_\_\_\_\_

**AC2-20**

**April-2018**

**B.Sc., Sem.-VI**

**309 : Biotechnology  
(Microbial Biotechnology)**

**Time : 3 Hours]**

**[Max. Marks : 70**

- Note :** (1) Draw figures wherever necessary.  
(2) Mention correct question number against each answer.  
(3) Figures to the right indicate marks.

1. Answer the following : (any **two**) **14**
  - (a) Describe the criteria for selection of industrial microorganisms.
  - (b) Explain the theory and the various methods of sterilization of waste and exhaust from bioreactor.
  - (c) What are the points to be considered during formulation of media for industrial fermentation ?
  - (d) How is inoculum developed for bacterial and fungal fermentation ?
  
2. Write short notes on : (any **two**) **14**
  - (a) Cultivation of edible mushrooms.
  - (b) SCP and its mass production.
  - (c) Process of production and recovery of baker's yeast.
  - (d) Inoculum development and media for *Rhizobium* biofertilizers.
  
3. Explain the following : (any **two**) **14**
  - (a) Continuous process for ethanol two stage fermentation.
  - (b) How is over production of amino acid achieved by using auxotrophic strains of organisms ?
  - (c) Fermentation and recovery of citric acid.
  - (d) Production and use of Vitamin B12.

4. Answer the following : (any **two**) **14**
- (a) Explain the genetic regulation and the role of secondary metabolites in fermentation industry.
  - (b) Describe the production of ergot alkaloid.
  - (c) Explain the role of strain improvement program in antibiotic fermentations.
  - (d) Discuss the fermentative production of xanthan gum.
5. Give short and specific answers in **1-2** lines only. **14**
- (a) Which hydrocarbons are used in fermentative industry ?
  - (b) Differentiate between primary and secondary screening.
  - (c) List important advantages of continuous sterilization.
  - (d) Give two examples of synthetic antifoam used fermentation medium.
  - (e) What is microbial insecticide ? Give two examples.
  - (f) Name two species of yeast used as the source of SCP.
  - (g) What is the economic importance of Chaetoceros algae ?
  - (h) Differentiate between 'contamination' and 'containment'.
  - (i) Define 'prototrophs'.
  - (j) What is submerged fermentation ?
  - (k) Name two methods of production improvement without making genetic manipulation.
  - (l) What is the mode of action of rifamycin ?
  - (m) What is polyhydroxyalkanoates and which organism produces it ?
  - (n) What is open fermentation ?
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