

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

# LG-108

April-2014

B.Sc. Sem.-VI

## CC-310 : Microbiology (Fermentation Technology)

Time : 3 Hours]

[Max. Marks : 70

- Instructions :**
- (1) All questions carry equal marks.
  - (2) Figures on right indicate marks of each question.
  - (3) Write the number of question correctly in the margin.
  - (4) Draw neat diagrams if necessary.

1. Answer the following (any **two**) : **14**
  - (a) Define strain improvement and explain main targets of strain improvement.
  - (b) What are auxotrophs ? Explain the role of auxotrophic mutants in lysine production.
  - (c) Describe how properties other than yield can be modified for commercial success of a process.
  - (d) Explain how industrially important organisms are preserved.
  
2. Answer the following (any **two**) : **14**
  - (a) What is DSP ? How is the entire process designed ?
  - (b) Describe filtration as a method of cell harvesting during DSP.
  - (c) Explain the cell disruption methods used in DSP.
  - (d) Describe the liquid-liquid extraction method of product concentration and purification.
  
3. Answer the following (any **two**) : **14**
  - (a) Explain how pyrogen testing is done in pharmaceutical industries.
  - (b) Give an overview of clean room environment.
  - (c) Explain in brief the methods used for disposal and treatment of effluent in industries.
  - (d) Describe the scale up process of fermentation industry.

4. Answer the following (any **two**) : **14**
- (a) Explain strain improvement and recovery with reference to Penicillin production.
  - (b) Explain importance of media composition and mechanism of Citric acid fermentation.
  - (c) Describe fermentative production of bacterial Amylase.
  - (d) Describe fermentative production of Ethanol.
5. Answer the following in **1-2** lines only : **14**
- (1) The yield of which product is increased by modifying cell permeability ?
  - (2) Which mutants are isolated by gradient plate technique ?
  - (3) What are constitutive mutants ?
  - (4) Name two products produced by rDNA technology.
  - (5) What are colligends ?
  - (6) Give names of two coagulating agents.
  - (7) Name the techniques used in final stages of product formulation.
  - (8) Name two chromatographic techniques used in product purification.
  - (9) What is containment ?
  - (10) What is GILSP ?
  - (11) As components of quality assurance, what do GMP and SOP stand for ?
  - (12) Give the importance of positive controls in sterility testing.
  - (13) Name the organism used for bioassay of Penicillin.
  - (14) Name the fungi used for production of Amylase.
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