

Shree Manibhai Virani and Smt. Navalben Virani Science College (Autonomous)

Affiliated to Saurashtra University, Rajkot

SEMESTER END EXAMINATION APRIL – 2017

M. Sc. Microbiology

16PMBCC05 – BIOPROCESS TECHNOLOGY

Duration of Exam – 3 hrs

Semester – II

Max. Marks – 70

Part A (5x2= 10 marks)

Answer **ALL** questions

1. Enlist two criteria for selecting Antifoam agent.
2. Enlist the names of different types of Propellers used in fermentor.
3. Define: Online sensors
4. Enlist the name of two organisms explored commercially for Amylase production.
5. Enlist the types of centrifuges used in fermentation industries.

Part B (5x5= 25 marks)

Answer **ALL** questions

- 6a. Enlist names of techniques used for preservation of industrially important microorganisms.
Discuss any one in brief.

OR

- 6b. Discuss in brief Auxanography with suitable example.

- 7a. Write a brief note on tower fermentor.

OR

- 7b. State the importance of studying Rheology of fluid in fermentation technology.

- 8a. Write a brief note on scale up and scale down of process in fermentation industry.

OR

- 8b. Write a brief note on Kinetics of growth and substrate utilization in Continuous fermentation process.

- 9a. Write a brief note on Dextran production.

OR

- 9b. Write a brief note on downstream processing of Citric acid production.

- 10a. Enlist types of filters used in fermentation industries. Discuss any one in brief.

OR

- 10b. Write a brief note on Crystallization of fermentation products.

Part C (5x7= 35 marks)

Answer **ALL** questions

11a. Enlist the names of methods used for strain improvement programme. Discuss any one in detail with suitable example.

OR

11b. Write a detail note on methods of Primary screening used for industrially important microorganisms.

12a. Write a detail note on Response Surface Methodology? Discuss Plackette-Burman design in brief.

OR

12b. Draw the ideal fermentor and label it appropriately. State the function of each component.

13a. Write a detailed note on Fermentation economics.

OR

13b. Enlist types of thermal sensor used in fermentation industry. Discuss any one in detail.

14a. Write a detail note on Alcohol production in terms of organisms, upstream and downstream process.

OR

14b. Write a detail note on SCP with respect to organisms, production and significance.

15a. Enlist types of Liquid liquid extraction method. Discuss any one in detail.

OR

15b. Enlist the name of methods of immobilization. Discuss any two in brief.
