Enrollment No. _____

Shree Manibhai Virani and Smt. Navalben Virani Science College (Autonomous)
Affiliated to Saurashtra University, Rajkot

SEMESTER END EXAMINATION APRIL – 2017

M. Sc. Biotechnology

16PBTCC06 - BIOPROCESS TECHNOLOGY

Duration of Exam – 3 hrs ***Semester – II*** ***Max. Marks – 70***

***Part A** (5x2= 10 marks)*

Answer **ALL** questions

1. What is Starter culture.
2. What is Reynod's Number.
3. Define Thermal death time.
4. Differentiate between coagulants and flocculants.
5. Name three Single cell Proteins.

***Part B** (5X5 = 25 marks)*

Answer **ALL** questions

6a. Write various methods for strain improvement.

OR

6b. Write various steps involved in production of inoculum for industrial fermentations.

7a. Describe Kinetics of batch culture.

OR

7b. Difference between Fed-batch and Continuous culture.

8a. Discuss following

i) Role of Diffusion in Bioprocessing.
ii) Film Theory as a model for mass transfer.

OR

8b. Draw a well labelled diagram showing the main components of a biosensor.

9a. Write note on following

i) Centrifugation methods
ii) Filtration methods

OR

9b. Explain ion exchange chromatography

10a. Discuss Advantages and Disadvantages of Large-scale production of microbial biomass.

OR

10b. Write notes on following

i) Lyophilization

ii) Secondary screening

Part C (5X7 = 35 marks)

Answer **ALL** questions

11a. Explain the typical media composition for fermentation

OR

11b. Describe production of pharmaceutically important fungi.

12a. Explain the sterilization process of a fermenter

OR

12b. Write an essay on Microbial growth and Death Kinetics.

13a. Describe various scale up technologies

OR

13b. Describe role of computers in control systems.

14a. Write an essay on various chromatography techniques.

OR

14b. Write notes on following

i) Yield and Recovery

ii) Product purity

iii) Research Cost

15a. Describe the production of Amino Acids (Lysine **or** Glutamic acid).

OR

15b. Describe various industrial methods for Alcohol fermentation