

Date: 30th November, 2012
Time: 02:30 pm to 05:30 pm

Max Marks: 70

- Q. 1 (08)
1. In Exponential growth phase,
 - a. Cells grow at a constant and specific growth rate remain maximum.
 - b. Cells not grow and specific growth rate remain constant.
 - c. Cells grow at a constant and specific growth rate remain zero.
 - d. None of the above
 2. Del factor is,
 - a. Sterilization criteria
 - b. $\ln N_0/N_t$
 - c. Both a and b
 - d. Only b
 3. Which of the following chemical agent is used for precipitation of protein?
 - a. Acetone
 - b. Polyethyleneglycol
 - c. Ethenol
 - d. All of the above
 4. In Stationary growth phase, value of specific growth rate is
 - a. Maximum
 - b. Minimum
 - c. Zero
 - d. None of the above
 5. Microbial cultures are stored in liquid nitrogen at the temperature of ____.
 - a. 0 °C
 - b. 4 °C
 - c. -25 °C
 - d. -180 °C
 6. Bourdon tube is used to measure
 - a. pH
 - b. Pressure
 - c. Temperature
 - d. DO
 7. _____ is an example of chelator for fermentation media.
 - a. EDTA
 - b. Citric acid
 - c. Polyphosphates
 - d. All of above
 8. Which of the following is a physicochemical method of cell disruption
 - a. Ultrasonication
 - b. Osmotic shock
 - c. Detergents
 - d. Alkali treatment

- Q -2 Explain the terms in brief: (any seven) (14)
1. Chemostat
 2. Antifoams
 3. Feedback inhibition and Feedback repression
 4. Feed forward control
 5. Precursors
 6. Fluidized bed reactor
 7. Scale up and Scale down
 8. Freezing-Thawing
 9. Immobilization of enzyme
- Q-3 (A) What are the factors affecting the choice of nitrogen source? (06)
Describe in short various nitrogen sources used in fermentation processes.
(B) Explain in brief the criteria for ideal inoculum. (06)
- OR**
- (B) Write a note on Lyophilization. (06)
- Q-4 (A) Explain in detail gassing out technique for determination of Volumetric mass transfer coefficient. (06)
(B) Explain the design of Immobilized enzyme reactor. (06)
- OR**
- (B) Explain the design of Plug flow reactor. (06)
- Q-5 (A) Explain the kinetics of batch process. (06)
(B) Justify the statement "Total sterilization may never be achieved." (06)
- OR**
- (B) Write a note on: Super critical fluid extraction. (06)
- Q-6 (A) Explain: PID controller. (06)
(B) Write a short note on: (any one) (06)
- a) Alginate method for cell immobilization.
 - b) Physicomechanical methods for cell disruption.
