[A-33]

Number of printed pages ..2

Sardar Patel University

M.Sc. (Integrated) Biotechnology, Seven Semester Examination
Friday, 24th April, 2015
10:30 a.m. to 01:30 p.m.
PS07CIGIB3: Fermentation Technology

Note:
1. Figures to the right indicate marks.
2. Draw neat and labeled diagram, wherever necessary.

Q1. **Attempt the followings.** [8]

1. Which of the following components of fermentation medium help to regulate the production rather than growth of microorganisms?
   A. Precursors B. Inducers C. Inhibitors D. All of the above
2. _____of the following has much higher energy as carbon source
   A. Carbohydrate B. Vegetable oil C. Hydrocarbon D. Fire
3. Which of the following methods is used for sterilization of medium?
   A. Steam B. Filtration C. Heat D. All of these
4. Increasing the chromium content _____ resistance to corrosion.
   A. Enhances B. induces C. impulses D. none of the above
5. A continuous reactor in which only a medium component is used to control the rate of cell growth or product formation is called _____.
   A. Turbidostat B. pH stat C. Chemostat D. Compostat
6. If agitation rate is increased at fixed aeration,
   A. K_L and a increase B. K_L increase and a decrease C. K_L decrease and a increase D. K_L and a decrease
7. In batch culture, the stationary phase is that point where the growth rate has declined to _____.
   A. One B. Zero C. Two D. Three
8. _____ can be used to measure flow rate of liquid.
   A. Rotameter B. Load cells C. Motorized pumps D. All of them

Q2. **Answer the followings (Attempt Any seven)** [14]

1. List out the chronological development of fermentation processes.
2. Enlist criteria for selection of antifoam agent.
3. Write about advantages of continuous sterilization.
4. Describe calculation of ∇ cooling.
5. Define batch, continuous and fed batch fermentation.
6. Enlist type of aseptic seals for agitation shaft.
7. Describe construction and measurement of temperature by mercury- in -glass thermometer.
8. Enlist different types of fermenters used for animal cell culture.

Q3. (a) Explain different types of carbon sources used for ferementation. [06]
(b) Describe the metabolic regulators in detail. [06]

OR

(b) Write in detail about mechanism of antifoam agents. [06]

Q4. (a) Derive the kinetics for media sterilization. [06]
(b) Describe ∇ and its significance in sterilization cycle. [06]

OR

(b) Draw a schematic diagram of waldhof and air lift fetmenter. [06]

Q5. (a) Write a note on kinetics of continuous culture. [06]

(b) Define K_La and explain various parameters affecting K_La? [06]

OR

(b) What is Newton's law of fluid rheology? Explain fluid rheology in detail. [06]

Q6. (a) Write a note on equipments for flow rate measurement. [06]

(b) Enlist different types of automatic control. [06]

OR

(b) Draw a schematic diagram of Magnetic flow meter and rotameter. [06]

------X------