Sardar Patel University
M Sc II Semester Microbiology/Biotechnology/Industrial Biotechnology
PS02MIC/BIT/IBT21 Bioprocess and Biochemical Engineering
External Theory Examination

Date : 18th March, 2019 , Monday   Max Marks : 70
Time: 2:00 to 5:00 pm

Q. 1   Choose the correct answer   (08)

1. Which of these is a pneumatic system
   a) cyclone column reactor   b) airlift reactor
   c) Gas aspiring tube reactor   d) none of these

2. The Del factor denotes
   a) sterilization temperature   b) Driving force for sterilization
   c) degree of sterilization   d) Critical oxygen concentration

3. The Bourdons tube is used to measure
   a) pressure   b) temperature
   c) DO   d) pH

4. Productivity means
   a) yield/hour   b) product yield
   c) production efficiency   d) all

5. Find the odd one out
   a) Gassing out technique   b) sulfite oxidation method
   c) Dichromate method   d) Oxygen balance technique

6. A cultivation system in which we add medium or a medium
   component at a particular rate but do not withdraw, is called as
   a) Fedbatch cultivation   b) external feedback cultivation
   c) Anaerobic cultivation   d) Batch cultivation

7. Which of these is not a component of fermentor
   a) agitator   b) sparger
   c) baffles   d) heat exchanger

8. The growth of an organism in a batch process is described by
   a) MM equation   b) Monads equation
   c) Darcy's equation   d) none

(1)   (P.T.O.)

Q. 2 Explain the terms in brief: **(any seven)** (14)

  a) Biosensor
  b) Film theory
  c) Culture degeneration
  d) Containment
  e) Strain improvement
  f) CIP/SIP
  g) Dcrit
  h) Hydrodynamic system
  i) Rheology

Q. 3 A) Explain secondary screening. (06)
  B) Write a note (Any one) (06)
  a) Importance of cheap raw materials
  b) Lyophilization

Q. 4 A) Discuss the kinetics of a batch sterilization process (06)

  B) Explain the design of a laboratory scale fermentor (06)
  OR
  B) Discuss the methods used for determination of K_La (06)

Q. 5 A) Explain various types of control systems (06)

  B) Write a note on: (any one) (06)
  a) Chemostat
  b) Variable volume fedbatch cultivation

Q. 6 A) List separation techniques used in downstream processing and explain solvent extraction (06)
  B) Write a note on (any one) (06)
    i) Cell separation by centrifugation
    ii) Fermentation economics

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