

[98/120]

SEAT No. _____

No. of Printed Pages : 2

Sc

Sardar Patel University
M Sc II Semester Microbiology/Biotechnology
PS02MIC/BIT01 Bioprocess and Biochemical Engineering
External Theory Examination

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

Max Marks : 70

Q. 1 Choose the correct answer

(08)

1. Which of these is a pneumatic system
 - a) cyclone column reactor
 - b) airlift reactor
 - c) Gas aspirating 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

