

Exam. Code : 107405

Subject Code: 1858

**B.Sc. Biotechnology 5th Semester
BIOPROCESS ENGINEERING—A**

Paper—BT-5

Time Allowed—3 Hours]

[Maximum Marks—40

Note :—Attempt as per directed.

SECTION—A

All questions are compulsory.

1×8=8

1. Define and explain the followings :—

(i) Culture.

(ii) Fed batch culture.

(iii) Metabolite.

(iv) Kinetics.

(v) pH effect.

(vi) Temperature effect.

(vii) Bioreactor.

(viii) Del factor.

SECTION—B

Attempt any **FOUR** questions :—

5×4=20

2. Discuss the continuous sterilization.

3. Discuss the air sterilization.

4. Diagrammatically explain the internal feedback bioreactor.
5. Diagrammatically explain the external feedback bioreactor.
6. Discuss the substrate inhibition kinetics.
7. Correlate the doubling time with specific growth rate.
8. Diagrammatically explain the oxygen transfer in bioreactor.
9. Diagrammatically explain the heat transfer in bioreactor.

SECTION—C

Attempt any **TWO** questions :—

6×2=12

10. Discuss the kinetics of air sterilization.
11. Discuss the kinetics and effect of temperature on product synthesis.
12. How will you experimentally determine the maximum specific growth rate and saturation constant ? Discuss.
13. Discuss the kinetics of quazy steady state condition of fed batch bioreactor.