

Exam. Code : 107405

Subject Code : 2292

**B.Sc. Biotechnology 5<sup>th</sup> Semester  
BIOPROCESS ENGINEERING-A**

**Paper-BT-5**

Time Allowed—3 Hours]

[Maximum Marks—40

**SECTION-A**

(All questions are compulsory.)

1. Define and explain the following :

(i) Fed batch

(ii) Continuous culture

(iii) Productivity

(iv) Biomass

(v) Product

(vi) Inducer

(vii) Fermenter

(viii) Sterilization.

.1×8=8

**SECTION-B**

(Attempt any **four** questions)

2. Discuss the sterilization cycle.
3. Discuss the depth filter.

4. Diagrammatically explain the internal feedback bioreactor.
5. Diagrammatically explain the external feedback bioreactor.
6. Discuss the growth kinetics.
7. Correlate the doubling time with specific growth rate.
8. Discuss the factors affecting oxygen transfer in bioreactors.
9. Discuss the  $K_L a$ . 5×4=20

### SECTION-C

(Attempt any **two** questions)

10. Discuss the kinetics of media sterilization.
11. Discuss the kinetics and effect of inducer on product synthesis.
12. How will you experimentally determine the maximum specific growth rate and saturation constant ? Discuss.
13. Discuss the kinetics of fed batch bioreactors.  $6×2=12$