

Exam. Code : 107406

Subject Code : 2174

B.Sc. (Bio-Technology) Semester—VI

BIOPROCESS ENGINEERING—B

Paper—BT-5

Time Allowed—3 Hours]

[Maximum Marks—40

SECTION—A

(Attempt *all* the questions)

1×8=8

1. Write short notes in about **50** words each :

(i) Geometrical ratio of fermenter

(ii) Containment levels

(iii) Biosafety levels

(iv) Sensors

(v) D.O. Probe

(vi) Sedimentation

(vii) BOD

(viii) COD.

SECTION—B

(Attempt any *five* questions)

4×5=20

2. Discuss the basic function of bioreactors.

3. Discuss the bioreactor vessels.

4. Discuss the offline sensors.

5. Discuss the safety valves used in bioreactors.
6. Discuss the foam separation methods of bioproducts in bioprocesses.
7. Discuss the industrial centrifugations.
8. Discuss the oxygen sag curves in downstream processing.
9. Discuss the disposals of effluents.

SECTION—C

(Attempt any *two* questions) $2 \times 6 = 12$

10. Discuss the achievements and maintenance of aseptic conditions in bioreactors.
11. Discuss the different types of sensors used in bioreactors.
12. Discuss the continuous filtration.
13. Discuss the different factors involved in effluent treatments.