

**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) 2×6=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.