

3. Explain the role of growth factors with example in fermentation media.
 4. What is fed batch fermentation?
 5. Explain Bingham plastic rheology.
 6. What does dC_L/dt denotes and what is its significance.
 7. Enlist various temperature measure devices utilize in fermentor.
 8. Explain the role of orifice sparger in the aeration system of the fermentor.
 9. What is reverse phase chromatography (RPC)?
- Q. 3. a). Discuss various carbon sources used in media preparation at industrial level. 6
 b). Enlist the various types of impellers used in industrial fermentors and explain the most widely used impellar. 6
- OR**
- b). Explain the ideal characteristics of an antifoam agent and discuss its role in a fermentation process 6
- Q. 4. a). Describe continuous sterilization process. 6
 b). Discuss the air sterilization and filter designing. 6
- OR**
- b). Justify: Same degree of sterilization can be achieved over a time temperature regime. 6
- Q. 5. a). $K_L a$ is a yardstick of any fermentation process. – justify 6
 b). Write a note on : PID controller. 6
- OR**
- b). Discuss gassing out method for determination of K_{La} . 6
- Q. 6. a). Write a note on : liquid-liquid extraction with suitable example. 6
 b). Explain cell recovery process by filtration. 6
- OR**
- b). Discuss Ion exchange chromatography method with suitable example. 6