

B.Tech. Eighth Semester (Food, Pulp & Paper, Oil & Paint and Petro. Tech.) (CGS)
11086 : Food Technology - VI : 8 FT 01

P. Pages : 2

Time : Three Hours



AU - 3066

Max. Marks : 80

- Notes : 1. Answer all question from section A and all question from section B.
2. Diagrams and Chemicals equations should be given wherever necessary.
3. Illustrate your answer necessary with the help of neat sketches.

SECTION - A

1. a) Give the classification of biomass estimation methods. Describe any one method of biomass estimation. 8
b) Draw a schematic diagram of component parts of fermentation process. 6

OR

2. a) Describe batch culture growth kinetics. 8
b) A 5m³ bioreactor is operated continuously with feed substrate concentration 20 kg/m³. The microorganisms cultivated in a reactor has following characteristics. 6
 $\mu_{\max} = 0.45 \text{ hr}^{-1}$, $K_s = 0.8 \text{ kg/m}^3$
 $Y_{x/s} = 0.55 \text{ kg/kg}$
What feed flow rate is required to achieve 90% substrate conversion? How does the biomass productivity at 90% substrate conversion compare with the maximum possible.
3. a) Describe manufacture of bacterial single cell protein by continuous culture method. 8
b) What is single cell protein? Enlist microorganisms from each category. 5

OR

4. a) Explain manufacture of active wet yeast. 8
b) Give the applications of yeast in food industry. 5
5. a) Describe in detail manufacture of extracellular bacterial enzymes by submerged method. 10
b) Give the applications of amylases enzymes in food industry. 3

OR

6. a) Describe the dynamic method of gassing out of $K_L a$ measurement. 7
b) Discuss the fermentation fluid rheology. 6

SECTION – B

7. a) Describe in detail manufacture of citric acid. 11
b) Give the applications of citric acid in food industry. 3

OR

8. a) Draw flow diagram of beer manufacture. 7
b) What are the objectives of brew Kettle boil? 7
9. a) Describe continuous method of sterilization of fermentation media. 8
b) An industrial sterilization of liquid media was carried out in 1000 dm³ vessel with medium containing 10⁵ organisms/cm³, requiring 0 probability of contamination of one in 1000. If the del factor of heating is 9.5 & cooling is 10.5. Find the holding time in minutes. The specific death rate of B. Stearothermophilus spores at 121°C is λ -54 min. 5

OR

10. a) Draw a sketch of fermenter with various controls. 7
b) Draw a schematic diagram of Rotary vacuum filter. 6
11. a) What is enzyme immobilization? Explain in brief chemical method of enzyme immobilization. 8
b) Give the applications of enzyme immobilization in food industry. 5

OR

12. a) Draw flow diagram of available unit operations for primary, secondary & tertiary waste water treatment. 8
b) Describe in brief trickling filter. 5
