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Total number of printed pages: Programme (UG)/7th /UFET712

2024
Fermentation Technology
(Back paper)

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer any five questions.

1. Draw cell growth curve and discuss different phase of growth. What is doubling time? Write cell growth rate equation. 12+4+4=20
2. What is fermentation? What is stoichiometry? Draw a schematic diagram of a fermenter and mention all accessories and how control unit works? 5+5+10= 20
3. Why nutrient medium is required to sterilize before initiating fermentation? What is sterilization factor ? How it is determined? Why the final desired microbial load can not be assumed zero? 5+5+5+5=20
4. What is Monod equation? Discuss with plot? What is Batch culture? 10+10=20
5. What is CSTR? What is dilution rate? How does this operational strategy overcomes the disadvantage of batch culture? 5+4+5+6=20
6. Mention disadvantage of CSTR. Why aeration and agitation is required in fermentation? How oxygen is transferred from gas bubble to microbial cell in suspension culture? What is maintenance 8+8+4=20

coefficients?

7. What is Fed batch culture? What is plug flow reactor? How it is useful for immobilized enzyme conversion? Discuss mathematically with Michelis Menten equation

8+12=20