Fdqu.2103   Bio Chemical Engineering (1+1)

Marks:50
Time:2 hrs.

I   **Fill in the blanks:**   (10x1=10)
1   Swirling and vortex formation can be prevented by_____
2   A reactor has a total volume of 50,000 liters. If it has a headspace volume of 10,000 liters, then volume of liquid in the reactor will be _____
3   A mixed fermentation is one, which produces _____
4   Heat transfer rates will be lowest in _____ reactor
5   Micro filtration refers to the separation of suspended material such as bacteria by using a membrane with spore sizes of _____
      State true or False
6   Competitive inhibition pattern based on Michaelis Menten equation
7   Yield coefficient represents production time of biomass or product
8   During fermentation process the of the yield of ATP is low
9   The specific death rate of an organism can be expressed as ln 2/D
10   In international classification Ligases belongs to class two enzymes

II   **Write Short notes on ANY FIVE of the following**   (5x2=10)
1   What is scaling up of bioreactors?
2   Factors affecting the value of kLa.
3   Compare batch and continuous sterilization
4   Membrane process.
5   Define LB plot, and where it is used
6   Types of heat exchangers used in bioreactors
7   Classification of enzymes

III   **Answer ANY FIVE of the following**   (5x4=20)
1   Discuss application of enzymes in food industry
2   Downstream processing
3   Importance of aeration and agitation
4   Mass transfer coefficient for bubbles in biochemical reactions
5   Michaelis Menten Kinetics
6   Fed batch culture
7   Design of packed bed reactor

IV   **Answer ANY ONE of the following**   (1x10=10)
1   Batch and continuous sterilisation process in large scale.
2.   Separation of insoluble products from fermentation broth.
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