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(20622) (Printed Pages 4)

Roll No. .....

B.Sc.(Bio.Tech.) - III Year

3479(N)

B.Sc. (Bio-Tech.) Examination, June-2022

Bioprocess Engineering and Technology

B-307 (Old) & B-311 (New)

Time : Three Hours] *[Maximum Marks : 100*

Note : Attempt any **five** questions. **All** questions carry equal marks.

1. Explain with neat diagram, the continuous sterilization processes and discuss its advantages over batch sterilization processes.

2. Describe the working principle of fluidized bed bioreactors and its application in bioprocess.

3. Amaylase is used to hydrolyze starch to glucose. Results measured at fixed starch and enzymes concentrated are tested in the table below :

Temperature ^0C	Rate of Glucose Production mmo/m3.s
20	0.31
30	0.66
40	1.2
60	6.33

(1) Determine the activation energy of this reaction.

(2) If the reaction is carried out at 55 ^0C. What is the reaction rate when compared with 25^0C.

4. Discuss the following methods of k_L determination in bioreactors

   (1) Dynamic Gassing method

   (2) Sulphite Oxidation method

5. Explain about various structured kinetic models used for the analysis of a bioprocess.

6. Write short note on :

   (1) Cheese making by proteases

   (2) Beer mashing and chilling proofing

7. What is downsteam processing? Describe various steps involved in downstream processing with the help of suitable diagram.

8. Discuss bioseparation? Discuss in detail about techniques used for cell separation.

9. Describe Production, recovery and scaling up of enzymes and their role in food and other industries.

10. Write short notes on any **four** of the following:

    (a) Scale up process

    (b) Effluent treatment

    (c) Hydrolyzed Proteins

    (d) Biotransformation

    (e) Fermentation media